

On Coreferentiality Constraints and
Equi-NP-Deletion in English

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INTRODUCTION

This thesis is concerned with a number of problems that arise in conjunction with the necessary, allowed, or disallowed coreferentiality of a complement sentence subject with some NP in a higher sentence. Such constraints have been variously treated in the literature as conditions on a transformation--generally known under the name of EQUI-NP-DELETION--or as conditions on the well-formedness of underlying (deep) structures. Regardless of this important distinction, such constraints have been stated as governed by verbs--henceforth COSUB verbs--which require that some NP in the same simplex sentence as them be coreferential with the subject of an immediately lower complement sentence, henceforth the deletee. The higher noun phrase--the "controller NP"--has been identified, in all analyses to date of which I am aware, as the subject, direct object, or indirect object of some COSUB verb, thereby making it necessary that COSUB verbs be idiosyncratically marked for a subject--subject, direct object--subject, or indirect object--subject constraint.

The basic claim of this thesis is that these three separate constraints are unnecessary, and that they reduce rather naturally to the subject-subject case, given independently motivated analyses

of COSUB verbs, within the theoretical framework which has come to be known as "generative semantics."

The first chapter of this thesis reviews a number of previous proposals on controller NP identity and evaluates the strength of their claims. The second chapter briefly presents the generative semantics assumptions that are pertinent to the ensuing discussion, and considers the validity of some arguments that have been offered in the literature. The third chapter attempts to justify the elimination of idiosyncratic verb-marking--henceforth the Marked Verb Proposal--in favor of a subject-subject constraint applicable to a rather natural verb-class--henceforth the Subject-Subject Proposal. The semantic primes introduced in chapter 3 are defined in the Appendix to that chapter. In chapter four, the interplay of underlying-structure constraints and EQUI is discussed in the light of recent proposals to allow the application of EQUI at more than one point in a derivation and across an arbitrary number of sentence-nodes.

CHAPTER ONE

THE MAIN PROBLEMS DISCUSSED IN PREVIOUS TRANSFORMATIONAL TREATMENTS

Rosenbaum's Identity Erasure Transformation

In his book on complementation in English, Rosenbaum (1967) posited a rule of EQUI-NP-DELETION (in his terminology, the "identity erasure transformation") whose role was to delete the subject of certain complement sentences, when coreferentiality with an NP in a higher sentence and a set of other conditions were satisfied. He was not concerned with how to state formally the fact that coreferentiality is obligatory for certain verbs. This problem was attacked by Lakoff (1965) and Perlmutter (1968) and I shall return to it below.

Rosenbaum's Identity Erasure Transformation, which is claimed to be cyclical and obligatory, is reproduced in full below:

W	(NP)	X	+D	NP	Y	(NP)	Z
1	2	3	4	5	6	7	8

(i) 5 is erased by 2

(ii) 5 is erased by 7

The following conditions (henceforth the erasure principle) govern the application of the identity erasure transformation. An NP_i is erased by an identical NP_j if and only if there is a S_α such that

(i) NP_j is dominated by S_α

- (ii) NP_i neither dominates nor is dominated by S_α
- (iii) for all NP_k neither dominating nor dominated by S_α , the distance between NP_j and NP_k is greater than the distance between NP_j and NP_i where the distance between two nodes is defined in terms of the number of branches in the path connecting them.

The following points are worth noting in connection with this transformation:

- (A) The complement sentence whose subject is deleted is introduced by either the FOR-TO or the POSS-ING complementizer (this is the import of the feature +D, which is numbered 4 in the SD of the rule).
- (B) The rule is obligatory.
- (C) The controller is in the sentence immediately above the deletee.
- (D) There is a specific and necessary configurational relation between the controller and the deletee.
- (E) Whenever EQUI is applicable, the NP that qualifies as controller is unique.
- (F) The rule is cyclical.

The Problems

The rest of this chapter is devoted to a discussion of (A)-(F) above. Each point is expanded as a sub-section bearing the corresponding symbol.

(A) Complementizers allowing EQUI

To the best of my knowledge, the claim that EQUI is only applicable in the presence of either FOR-TO or POSS-ING has not

been challenged and I shall assume that its validity is not in question. No more will be said on this issue in the remainder of the thesis.

(B) Obligatoriness of EQUI

The claim that EQUI is always obligatory is slightly too strong. There are clear cases, like (1) and (2), in which EQUI is optional. Such optionality exists, in the speech of the informants I have consulted, with POSS-ING only.

(1) a. My shaving myself annoyed me.

b. Shaving myself annoyed me.

(2) a. John talked to Jill about $\left. \begin{array}{c} \text{his} \\ \text{her} \\ \text{their} \end{array} \right\}$ beating up Tom.

b. John talked to Jill about beating up Tom.

Moreover, Postal (1968) points out that EQUI is optional for some nominalizations, e.g.:

(3) a. His_i realization that you knew Greta disturbed Tony_i.

b. The realization that you knew Greta disturbed Tony.

The observation concerning nominalizations is pertinent only within the framework of a grammar that derives nominalizations transformationally.

Another shortcoming in Rosenbaum's treatment is his failure to notice that EQUI is sometimes inapplicable, even though the above structural description is met. Postal (1968) points out a great number of restrictions on the operation of EQUI. For example, EQUI

cannot apply backwards when the controller NP is indefinite:

- (4) *Finding out Greta was a vampire astonished somebody.

Postal correctly points out that (4) cannot be an instance of violation of underlying structure well-formedness conditions involving coreferentiality relations, for (5), which presumably is derived from the same source as (4), is well-formed:

- (5) Somebody was astonished at finding out Greta was a vampire.

However, it does not inevitably follow that (4) illustrates a restriction on EQUI. It could just as well be a restriction on surface structure well-formedness, or on the well-formedness of the output of some late transformation.

(C) The "limited domain" hypothesis

Although Rosenbaum's rule does not in fact claim that the applicability of EQUI is limited to two echelons of embedding, this assumption seems to underlie all the examples given in his book. Notice that it may seem that this assumption, although not explicitly stated, is implicit in the rule, since the erasure principle stipulates that if there is an NP in the immediately higher sentence, that one only is a possible controller. Such reasoning is, however, invalidated by cases in which the immediately higher sentence has only one NP, which in turn contains the complement sentence itself, as in examples (6) and (7).

- (6) John thinks that shaving himself would be a mistake.

- (7) John thinks that it is improbable that shaving himself would be a mistake.

In (6), there is one intermediate level of embedding between the controller and the deletee, in (7) there are two such. The it in (7) would not prevent John from acting as controller, since it is a N, not a NP. (In fact, in later formulations of EQUI, it would not even be present in the string at the point when EQUI applies, as it would be introduced by EXTRAPOSITION (Kiparsky and Kiparsky, 1968), which would, moreover, be a post-cyclic rule (Ross, 1967b).) As (6) and (7) are permitted by Rosenbaum's rule, it follows that the limited domain hypothesis is not explicit in his formulation, although it seems to be implicit in his practice. The hypothesis is incorrect, as shown by (6), (7) and (8). The latter also provides further support for the claim that EQUI may be optional.

- (8) a. George_i explained how it was possible for him_i
to defend himself with a pencil.
- b. George_i explained how it was possible to defend
himself_i with a pencil.

For additional counter-examples to the limited domain hypothesis, see chapter four, section two.

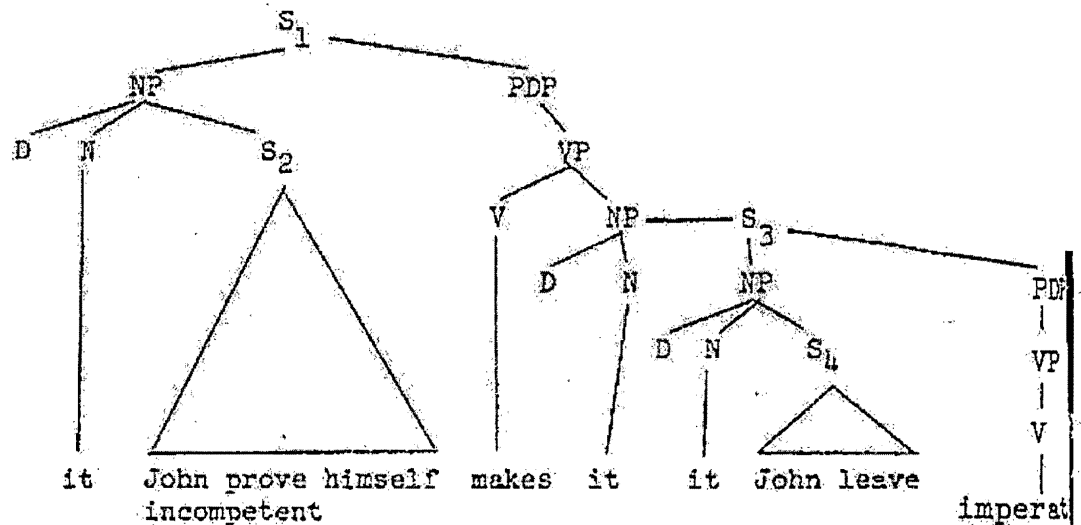
(D) The position of the controller in the structural description of EQUI

The configurational relations holding between the erasing and erased NPs are defined by Rosenbaum's erasure principle. Laying aside for the moment certain problems that will be discussed in connection with point (6), Rosenbaum's principle would seem to work fairly well. Consider now the following sentence:

- (9) That John has proven himself incompetent makes it
imperative for him to leave.

whose underlying structure is, schematically, (9'):

(9')



On the penultimate cycle, FOR-TO is assigned to S_4 , and on the last cycle, THAT is assigned to S_2 . After this, the leftmost occurrence of John can delete the rightmost one, as the conditions for the application of EQUI, as stipulated by Rosenbaum, are satisfied. But this will result in (10), which is not a paraphrase of (9):

(10) That John has proven himself incompetent makes it imperative to leave.

Therefore (10) cannot have arisen by application of EQUI to some stage in the derivation of (9). Notice also that EQUI could not have been blocked by the presence of it, which is an *W*, not an NP.

It appears that the position of the controller is not defined narrowly enough, and I think that Langacker (1966) succeeded in eliminating the undesirable application of EQUI to (9'). Langacker stipulates that the controller NP must command the deletee, but the latter must not command the former. This automatically rules out (9') as a possible source for (10), for neither occurrence of John

commands the other. Langacker also notes that the command-notion alone is not strong enough to limit the scope of EQUI. Indeed, it would allow the derivation of (11) b from (11) a, although the two are not paraphrases.

(11) a. John knows that Jill wants him to leave.

b. John knows that Jill wants to leave.

Some principle must be found, therefore, to prevent John from deleting the identical subject of the complement sentence, which it commands without being commanded by it. Langacker offers two possible candidates, the principle of control and the principle of limited domain. The notion of control is defined as follows: given three nodes A, B, C; B controls C from A if (a) A commands B, (b) both A and B command C, (c) B does not command A, and (d) C does not command either A or B. The principle of control says that the controller must control the deletee. This can explain why the first occurrence of John cannot delete a coreferential subject of the complement sentence: it is prevented from doing that by Jill, which controls the complement subject, and screens the latter from the influence of the leftmost John. The principle of limited domain says that a rule whose domain is limited in this particular way can only apply to a string involving two echelons of embedding. It is, in fact, no more than (C) of page 4. As the leftmost John involves a third echelon of embedding, it cannot act as controller, and the principle of limited domain accomplishes the same thing as the principle of control in this case.

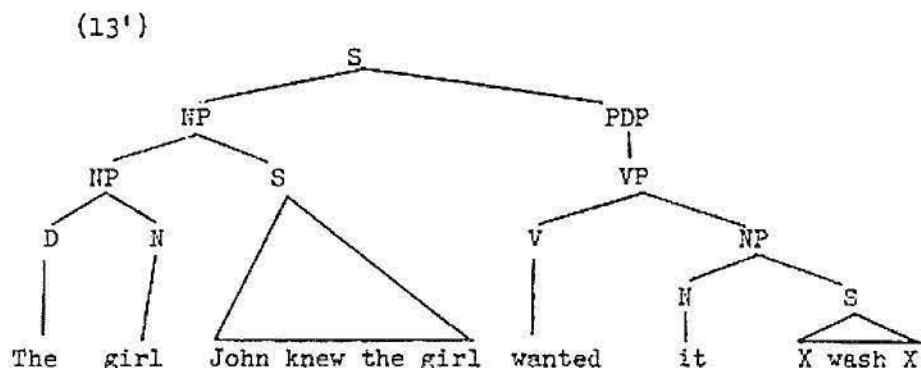
It looks like the principle of control and not that of limited domain should be used in the formulation of EQUI, because of sentences like (12):

- (12) John said that Jill knew that it would be hard to
criticize $\left\{ \begin{array}{l} \text{*himself} \\ \text{herself} \end{array} \right\}$.

Both principles can explain why John does not qualify as controller, but the principle of limited domain fails to explain why Jill does, as it is two levels of embedding above the deletee.

It should be pointed out that what Langacker accomplishes by the principle of control, Rosenbaum accomplishes by condition (iii) of his minimal distance principle. Indeed, in (12), John does not qualify as controller for there is an NP_k , Jill, that is closer to the complement subject than John. Also, despite Rosenbaum's failure to use a notion equivalent to "command", that is, despite his failure to specify that the S node which most immediately dominates the controller must also dominate the erased NP, condition (iii) of his minimal distance principle will in general ensure that the controller commands the erased NP. In (9'), according to his formulation, the leftmost John qualified as controller because it was not an NP. However, if this instance of John had been in a relative clause, it could not have acted as controller. Consider (13), with the underlying structure (13'):

- (13) The girl who John knew wanted to wash $\left\{ \begin{array}{l} \text{herself} \\ \text{*himself} \end{array} \right\}$.



Here, if X is coreferential with John, EQUI cannot apply, as the girl is closer to X than John is. EQUI can only apply if X is coreferential with the girl.¹

Excursus on Rosenbaum's Minimal Distance Principle

In section (E), I shall show that the assumption that the controller is always unique is untenable. Let us, however, pretend, in this excursus, that it can be defended, and take a look at some conclusions that Rosenbaum arrives at by incorporating it into his description of the English complement construction.

One of Rosenbaum's most important claims is that complementation is of two types: NP- and VP-complementation. He maintains that (14) is an instance of NP-complementation, while (15) is an instance of VP-complementation.

(14) I require of you to be here on time.

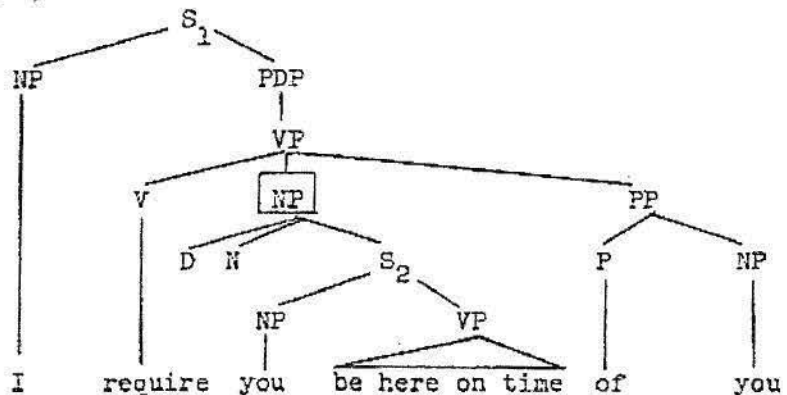
(15) I prevailed upon John to go.

He argues that the minimal distance principle "applies with such remarkable precision to so many cases" that apparent counter-examples may be assumed to be false ones. Then he claims that the

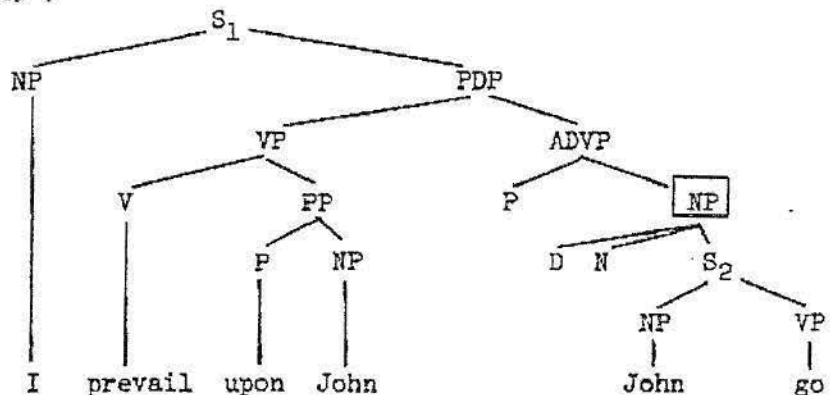
principle breaks down if an NP-complementation analysis is given for (15), but holds if VP-complementation is chosen instead.

Observe, however, the structures (14') and (15'), which Rosenbaum claims underlie (14) and (15) respectively, if NP-complementation is assumed:

(14')



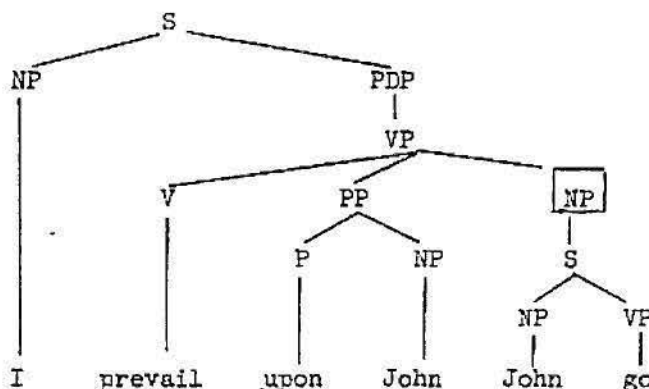
(15')



The boxed NP which dominates the complement sentence is within the main VP in (14') but outside it in (15'). Rosenbaum gives no explanation for this difference, but it and nothing else causes the minimal distance principle to break down. It is easy to see that

if the complement sentence is brought within the domain of the main VP the principle holds in both (14') and (15'); this is true even if the NP that dominates S_2 is in turn dominated by a PP node. The solution proposed by Rosenbaum is (15").

(15")



Notice that it not only eliminates the boxed NP above S_2 , but it also puts S_2 within the domain of VP. Had he merely removed the NP, the principle would not have failed to work like in (15').

The authors of Integration of Transformational Theories on English Syntax (henceforth: ITTES) consider two alternatives to Rosenbaum's formulation, neither of which constitutes a genuine alternative. First, they consider the possibility of allowing EQUI to apply after the rules of subjectivalization and objectivalization (the framework they assume is Fillmore's case grammar, in which subjects and objects are not represented in the deep structure). They claim that if the minimal distance principle applies at that stage, it will work correctly and "in a very natural way" in cases like (14) and (15), without requiring the addition of VP-complementation to the grammar. However, their solution

proves nothing about the naturalness of case grammar, since what they did was place the complement sentence within the main VP, thereby eliminating Rosenbaum's inconsistency. As I stressed above, Rosenbaum's framework works no less naturally in this particular case if his inconsistency is removed. The authors of ITTES reject this solution however, since the ordering of transformations they propose requires that EQUI precede subjectivalization and objectivalization. They propose to identify the controller NP by its case label as follows: when the sentence immediately higher than the complement contains both an AGENT and a DATIVE, the latter qualifies as controller. This second alternative is in fact equivalent to Rosenbaum's principle, for, unless the topmost sentence is passivized, the DATIVE always ends up as object and is therefore "closer" to the complement subject than the AGENT, which ends up as subject. Passivization of the topmost sentence does not affect the controller status of the DATIVE, since (15) is a paraphrase of (16):

(16) John was prevailed upon by me to go.

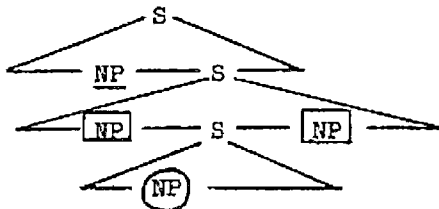
In Rosenbaum's framework, passivization is irrelevant to the issue, for EQUI applies before passivization. But in ITTES' framework, it becomes relevant, for passives are not derived from actives, and structures roughly like (14') and (15') are not available at any point in the derivation of a passive. If the minimal distance principle is allowed to work after passivization, it will make false predictions. Therefore, not only considerations of rule ordering, but also the unavailability of an active-like structure in the

derivation of passive sentences forces ITTES' authors to choose the second alternative rather than the first. A corollary of this conclusion is that if the first alternative is chosen, the case grammar framework will turn out to be less, rather than more, natural than the one assumed by Rosenbaum, as the minimal distance principle will only work for active sentences. To sum up: if passives are derived from actives, a statement in terms of case nodes is equivalent to the minimal distance principle. If passives are not derived from actives, only a statement in terms of cases is possible. It should be clear, however, that Rosenbaum's and ITTES' solutions are equivalent in predictive power, given the Aspects and Case Grammar frameworks respectively.

(E) The Controller-Uniqueness Problem

We have seen that the notion "commands" in conjunction with the principle of control disqualifies a large number of NPs from acting as controllers. However, this does not yet ensure uniqueness of controller, for there may be several NPs which control--in Langacker's sense--the deletee. Consider the following hypothetical structure:

(17)



The underscored NP is prevented from erasing the circled NP by the principle of control. However, the principle of control allows both boxed NPs to act as controllers. Rosenbaum obviously assumed that only one of these possible candidates should be allowed to act as controller in each and every case, and hoped that the minimal distance principle would correctly identify the controller. Postal (1968) has shown quite convincingly that the uniqueness assumption is incorrect in general, and that constraints independent of EQUI (which I assume to be equivalent to Perlmutter's (1968) constraints on the well-formedness of deep-structures) operate in the subset of cases where uniqueness is required.

Rosenbaum's minimal distance principle must be rejected for at least three reasons: First, it is not quite clear why there should be such a principle. Indeed, as Rosenbaum defines it, the minimal distance principle is not semantic, for it does not operate on underlying structures. Neither is it a perceptual strategy--in the sense of Bever (1970)--for two reasons: (a) the input to a perceptual strategy must be a surface string, not an intermediate stage in a derivation, and (b) a perceptual strategy can conceivably make use of linear distance, but hardly of distance measured in terms of tree branches. If the motivation for having a minimal distance principle is neither semantic nor perceptual, it is hard to see what it could be.

Secondly, as pointed out by Postal, the minimal distance principle is not required in a great number of cases, and Langacker's

principle of control would be there sufficient (Postal apparently believes that something like the principle of limited domain is strong enough, as he refers to the sentence "immediately higher" than the complement). As an example, consider (18):

(18) Harry talked to Bill about kissing Bertha.

Postal notes that the deleted subject of kissing can be ambiguously understood as either Harry, or Bill, or both. In addition, it seems to me that the deleted subject can also be understood as a generic, and I have found this interpretation to be possible in all the cases of ambiguous deletion I have been able to think of.

A third argument against the minimal distance principle or the DATIVE-as-controller proposal (see page 14) is that either fails in at least two types of cases. Consider the following contrasts:

(19) a. I asked John to eat.

b. I asked John when to eat.

(20) a. I asked John to go.

b. I promised John to go.

The two above mentioned proposals work in the sentences marked a, but not in those marked b. ITTES briefly takes up (20 b.), and attempts to dismiss it as a marginal case, a hybrid of the well-formed sentences I promised to go and I promised John that I should go. Even if their solution constitutes a satisfactory explanation (which I have doubts about), the minimal pair formed by (19) a and b must still go unexplained.

Postal proposes that ambiguous deletion be allowed within the limits of the principle of limited domain (he does not actually

use this phrase), and that uniqueness of controller be ensured, where required, by a number of modal constraints. Specifically, he proposes that sentences containing infinitivals of a certain kind² be derived from structures in which the complement sentence contains a modal. These modals would constitute the cause of controller uniqueness. He cites three separate modal constraints which he labels the Ought-, Will-Would-, and Would of intention- modal constraints. He argues as follows: in the following pairs, the b sentences should be viewed as transformationally derived from the structures underlying the a sentences:

- (21) a. Harry told Max_i that he_i $\left\{ \begin{array}{l} \text{should} \\ \text{ought to} \end{array} \right\}$ enlist in
the army.
b. Harry told Max to enlist in the army.
- (22) a. George asked Bill_i if he_i would help Mary.
b. George asked Bill to help Mary.
- (23) a. Harry_i promised Bill that he_i would visit Greta.
b. Harry promised Bill to visit Greta.

He gives two reasons for believing that the a and b sentences are derived from a common source--for any given pair: (a) they are paraphrases, and (b) neither the verbal element following the modal, nor the infinitival can be statives. As an illustration of (b), consider pairs like:

- (24) a. *I told Harry that he should intend to go.
b. *I told Harry to intend to go.
- (25) a. *I told Harry that he ought to be popular in France.
b. *I told Harry to be popular in France.

To these two arguments advanced by Postal, I should like to add a third, namely: (c) both the a and the b sentence types are rather bad with "emotive" adverbials.³ By way of example, consider:

- (26) a. *I told Harry that he should go { reluctantly
oddly
stupidly
regretfully
intentionally
etc. }
- b. *I told Harry to go { reluctantly
oddly
stupidly
regretfully
intentionally
etc. }

Two more arguments can be adduced here:⁴ (d) the sentence they were misunderstood is ambiguous, as it can have "a stative or durative reading, as well as a reading on which a single act or incident of misunderstanding is meant." However, in a and b, only the latter reading is possible, e.g.

- (27) a. I told them that they ought to be misunderstood.
b. I told them to be misunderstood.

(e) in both a and b, if misunderstood has an agentive by-phrase, the latter must be a "plural or collective noun phrase; it cannot be a singular or a conjunction of singulars" (but see chapter 3, p. 59.

- (28) a. I told them that they should be misunderstood

{ by their friends
by the public at large
*by Bill
*by Frank, Pete and Mike }

(28) b. I told them to be misunderstood

$\left\{ \begin{array}{l} \text{by their friends} \\ \text{by the public at large} \\ \text{*by Bill} \\ \text{*by Frank, Pete and Mike} \end{array} \right\} .$

It is important to understand that arguments (b) - (e) above do not offer final proof that sentences a and b in examples (21)-(28) are derived from common sources, and that instances of constraints that fail to be shared would be particularly damaging to the common-source hypothesis. If such counterexamples can be found, it will mean that the sources of sentences a and b share certain properties, but are not identical.

Observe now that certain problems arise in connection with argument (a). First, a substantial number of native speakers that I have consulted feel that (22) a and b are not paraphrases, a being more euphemistic than b. Secondly, the modals in (21) a are ambiguous, as they can express either moral obligation or desirability, or a command. This ambiguity is made possible by the fact that the verb tell itself is ambiguous between an informative or declarative reading and one of command. Therefore, (21) a can be construed either as an order given to Max, or as a statement of Harry's informing Max that he has a duty to enlist in the army. But (21) b is unambiguous, as it has only the command reading, and it is necessary to posit two underlying representations for (21) a and require that only the command reading be considered a possible transformational cognate of (21) b.

In addition to these semantic considerations, there are syntactic facts that suggest that there should be two separate sources for the readings of (21) a. Postal himself furnishes one argument, noting that, for certain speakers, he can be understood as a coreferent of either Harry or Max, and that this ambiguity is possible only when the modal has a "moral" interpretation rather than an "imperative" one.

Secondly, a command can only be aimed at a moment in time later than that at which it is spoken, while a moral duty can hold at the moment of its utterance, and we expect this distinction to have syntactic consequences. Deviant sentences based on tense restrictions are hard to construct, for the present continuous--the only "real present"--can also refer to a future time. Thus, (29) is grammatical,

(29) Be working!

for it may be continued as

(30) Be working when I return from work!

It is therefore necessary to appeal to time adverbs in order to bring out the moral/imperative distinction, and this is done in (31):

(31) a. I am telling you that you ought to be working
at this very moment.

b. *I am telling you to be working at this very
moment.

c. *Be working at this very moment!

Thirdly, non-emotive adverbials are acceptable with moral modals, but not with imperative ones:

- (32) a. I told John that he should $\left\{ \begin{array}{l} \text{probably} \\ \text{conceivably} \\ \text{undoubtedly} \end{array} \right\}$ go.
- b. *I told John to $\left\{ \begin{array}{l} \text{probably} \\ \text{conceivably} \\ \text{undoubtedly} \end{array} \right\}$ go.

It might be thought that (32) b is bad because an adverb intervenes between to and the verb. But this suspicion vanishes when we consider the behavior of please:

- (33) a. *John should please go.
- b. I told John to please go
- c. John, please go!

Fourthly, the complement sentence can passivize with both kinds of modals, but the underlying structures would not be the same. This can be seen rather clearly in (34):

- (34) a. I told Jill that she ought to be spanked for what she did to her husband.
- b. I told Jill to be spanked for what she did to her husband.

Perlmutter, in his dissertation, argues rather convincingly that passive imperatives ought to be embedded in a sentence whose subject is coreferential with the surface passive subject, whose verb is get or let, and which gets deleted by a later transformation. His arguments are both semantic and syntactic. Semantically, notice that (35) b is a paraphrase of (34) b, but (35) a is not a paraphrase of (34) a:

- (35) a. I told Jill that she ought to $\left\{ \begin{array}{l} \text{get} \\ \text{let} \end{array} \right\}$ (someone) to spank her for what she did to her husband.

- (35) b. I told Jill to $\left\{ \begin{array}{l} \text{get} \\ \text{let} \end{array} \right.$ (someone) to } spank
her for what she did to her husband.

Syntactically, it is not possible to use all Perlmutter's arguments, for some constraints on structures with let or get are also shared by moral modals. However, it is possible to use some. Firstly, sentences with be rumored cannot be embedded to sentences with let or get. Therefore, (36) is ungrammatical because (37) is ungrammatical.

(36) *Be rumored to enjoy surfing.

(37) * $\left\{ \begin{array}{l} \text{Get} \\ \text{Let} \end{array} \right.$ yourself to be rumored to enjoy surfing.

The fact that (38) a, but not (38) b, is grammatical, suggests that the latter, but not the former, has be rumored embedded to let or get.

- (38) a. I told Greta that she ought to be rumored to be
a freak (considering that she had destroyed
so many people's reputations).

b. *I told Greta to be rumored to be a freak.

Secondly, sentences like (39) are ambiguous between a reading which refers to a single incident and a durative or stative reading.

(39) Greta will be misunderstood.

However, if (39) is embedded to a sentence with let or get, only the former reading is possible, as seen in (40):

(40) Greta will get herself (to be) misunderstood.

If moral modals do not contain a let or get, we would expect the complement sentence in (41) a to remain ambiguous, and this prediction

is indeed confirmed:

(41) a. I told Greta that she ought to be misunderstood

{ at the evening party
for the rest of her life }

b. I told Greta to be misunderstood

{ at the evening party
*for the rest of her life }

We have examined a substantial body of evidence which leads to the conclusion that modal and imperative modals are syntactically distinct. The problem to be considered next is whether embedded infinitivals with imperative force should be derived from structures containing imperative modals.⁵

Observe that Postal postulates three separate modal constraints for handling what is felt to be a single phenomenon, the embedded imperative. This is not in itself objectionable, except that underlying modals are chosen on the basis of those that happen to appear on the surface. I say "happen," because verbs like beg, beseech, implore, disallow surface modals, and Postal is forced to require an obligatory rule of infinitivalization for these verbs. Notice that the choice of one modal constraint over another becomes rather ad-hoc in this case.

Next, verbs that take different surface modals do not exhibit an underlying semantic distinction parallel to that obtaining between the modals. Consider the pair:

(42) a. I told John to leave.

b. I asked John to leave.

According to Postal, tell requires the Ought constraint, while ask requires the Will-Would constraint. But the distinction between (42) a and b is, at least partly, presuppositional, in that the former but not the latter presupposes that the subject enjoys a position of authority over the object. Violation of this presupposition leads to such oddities as (43):

(43) a. ?The accused told the court to be lenient.

b. The accused asked the court to be lenient.

In addition to this, there probably is a difference between the meanings of tell and ask, as the former describes a command and the latter a request, and there appears to be a difference of degree between the two notions. Notice that the presupposition mentioned above need not be specified for tell, it is probably a feature of all command-verbs. Be this as it may, neither the difference in degree, nor the presupposition are explained by the presence of ought rather than would (but see also chapter 3, p. 78).

Another difficulty with sentences containing modals is that they do not always constitute perfect paraphrases of corresponding sentences containing infinitivals, at least for some speakers (e.g., (22)).

Furthermore, the will-would modal constraint seems to be required for ask and no other verb. This makes the constraint look suspicious, but does not necessarily indicate that it is wrong, for it is possible that ask have some idiosyncratic properties.

Postal attempts to unify the phenomena that he presents as modal constraints by pointing out that all the sentences where the constraints appear to work contain higher verbs of linguistic communication describing a non-declarative performance. Declarative verbs are exempted from such constraints, and the controller NP may be ambiguous within the limits allowed by the principle of limited domain. Verbs like tell are ambiguous between a declarative and a non-declarative reading, and their being subject to the constraints is a function of their reading in particular sentences. The same ambiguity is exhibited by the so-called "verbs of manner of speech", like scream, shout, moan, whisper, etc.

It should be made clear that Postal's modal constraints on non-declarative characterization of some verbs of linguistic communication only attempt to delineate the class of verbs that require controller uniqueness, but are powerless to predict which particular NP will be chosen as controller in specific cases. They furnish no principle by which we can predict that the controller is the subject of a verb like promise but the object of a verb like tell.

Postal proposes to handle controller-unique cases by positing idiosyncratic deep structure constraints for verbs referring to non-declarative performances. Earlier, I called this the Marked Verb Proposal. This proposal would require that the subjects of certain verbs and the objects of others be coreferential with the subject of the complement sentence in deep structure.⁶ Therefore, "...the

fact that the linguistic verb ask of request requires EQUI to delete an NP which is a coreferent of its indirect object is a function of the deeper fact that this verb requires its complement subject to be a coreferent of its indirect object..."

Notice that the kinds of deep structure constraints to which Postal refers are not limited to non-declarative linguistic verbs. In a trivial sense, they apply to verbs like write, cable, phone. In a more interesting sense, they apply to verbs like persuade and force which cannot be said to embed an imperative, and can therefore have nothing to do with modal constraints. There might be a semantic feature that non-declarative verbs of communication (oral or otherwise) and verbs like persuade and force share, but this feature is not easy to define.

As a first approximation, we may try "future-orientation", in the sense that the time of the complement is later than that of the COSUB verb. For example, in I order you to leave, the leaving can only take place after the order has been given. However, there are verbs which exhibit this future-oriented feature, but do not require coreferentiality, e.g., want, predict, forecast. We notice however that the latter three verbs can embed either statives or non-statives, while COSUB verbs embed non-statives only. Therefore, we may try to characterize the COSUB verbs with two features, i.e., +FUTURE ORIENTED and -STATIVE EMBEDDING, or in more informal language, "oriented towards future actions alone". The one embarrassing case that I am aware of is try, which does exhibit the coreferentiality

constraint but embeds some statives in addition to non-statives. In the Appendix, p. 86, I suggest a possible way of getting around this fact.

Recently (April 1970), Karttunen proposed an interesting classification of English predicate complement constructions, which comprised four basic classes: Factives, Implicatives, If-Verbs, and Only-if-Verbs. These four classes can be roughly defined as follows:

- (a) Both the assertion and denial of a Factive commit the speaker to the belief that the complement is true.
- (b) The assertion of an Implicative commits the speaker to the belief that the complement is true, while the denial of the implicative commits the speaker to the belief that the complement is false.
- (c) The assertion of an If-Verb commits the speaker to the belief that the complement is true.
- (d) The denial of an Only-if-Verb commits the speaker to the belief that the complement is false.

There is no reason to believe that the COSUB verbs coincide with any Karttunenian subclass or any group thereof. Rather, if the COSUBs constitute a natural semantic class, this class seems to cut across Karttunen's taxonomy.

The semantic characterization of COSUB verbs I offered above is extremely tentative; however, in testing its empirical validity, it will be necessary to distinguish between genuine counterexamples

and apparent ones resulting from homophony. For instance, the two instances of tell in (44) and (45) are really instances of different but homophonous verbs, the former only being a COSUB verb.

(44) I told him to get out.

(45) I told him that the weather is fine.

In general, COSUB verbs do not take the THAT complementizer, but I do not think that this should be generalized, in view of verbs like confess, which are COSUBs even with THAT. This can be seen in the following paradigm:

(46) I confess that I killed John.

(47) *I confess that Mary killed John.

In connection with the minimal pair exhibited by (19), Postal adopts a suggestion of McCawley's to the effect that (19) b is underlain by (48):

(48) I_i asked John_j to tell me_i (the answer to the question) when I_i should eat.

in which case (19) b reduces to the already known constraints on tell. The only difficulty is that telling someone the answer to a question looks like a declarative performance, and declarative tell carries no constraints. This difficulty is probably more apparent than real, and I attempt to provide an explanation in chapter three.

(F) The cyclicity of EQUI

Postal notes that Lakoff (1968) gave some rather convincing evidence in support of the proposition that EQUI is cyclical. Lakoff's argument runs briefly as follows: the rules of SUBJECT-RAISING and PASSIVE are cyclical. If EQUI can be shown to have to

occur before some occurrences of SUBJECT-RAISING and PASSIVE and after some others, this will prove that EQUI is cyclical. Now consider (49), with an underlying structure roughly like (49'):

(49) Harry was believed by everyone to have wanted to seduce Lucille.

(49') [Everyone believed [Harry wanted [Harry seduce Lucille.
1 2

It is clear that Harry was raised and then moved to the left by
¹
passivization. It must also delete Harry; if EQUI applies after
²
raising and passivization, its structural description must be
considerably complicated to be allowed to reach across everyone.

But if EQUI applies first, no modifications are necessary. Therefore, EQUI must precede certain applications of RAISING and PASSIVE.

Consider now (50) and its underlying structure (50'):

(50) Joe wanted to be seen by Mary kissing Betty.

(50') [Joe wanted [Mary see [Joe kiss Betty]]]
1 2

In this case, if EQUI applies first, Joe must erase Joe across Mary,
1 2
and the structural description of the rule becomes more complex.

But if RAISING and PASSIVE apply first, Joe is brought in a
2
position where its deletion becomes straightforward. Therefore, EQUI
must follow certain applications of RAISING and PASSIVE. Since
EQUI must follow certain instances of RAISING and PASSIVE--which
are cyclical rules--it follows that EQUI can be neither a precyclical
or a postcyclical rule, and can only be cyclical. But the ordering
indicated above is not only dictated by criteria of simplicity, it

is the only actual possibility. The reason for this is that EQUI may have to apply more than once in a structure, and it is theoretically possible to construct structures in which an arbitrary number of applications of EQUI is required. As there is no natural limit to the number of times EQUI may apply, if EQUI is not cyclical, its structural description becomes unstatable. By way of example, consider (51), where the sequence EQUI-RAISING-PASSIVE must apply on two cycles.

(51) Joe was thought by everyone to want to be seen
by Mary trying to kiss Lucille.

(51') [Everyone thought [Joe wanted [Mary see [Joe try
1 2
[Joe kiss Lucille]]]]
3

Joe deletes Joe, then it is raised and passivized, after which
2 3
it is in turn deleted by Joe, which is subsequently raised and
1
passivized.

Despite this impressive piece of evidence, Postal presents a large body of equally impressive evidence which points to the conclusion that EQUI cannot be cyclical. First, he shows that PRONOMINALIZATION must follow some last-cyclical or post-cyclical rules and must therefore be itself post-cyclical. Then, he lists a considerable number of rather peculiar constraints that hold for both PRONOMINALIZATION and EQUI, and concludes that an important generalization would be missed if a large number of constraints were repeated twice in the grammar. As it would not be possible to constrain EQUI after it has applied, the conclusion

that NPs that are eventually deleted must be first pronominalized in order to participate in the constraints seems rather inevitable. How can we then reconcile these two conflicting kinds of evidence, that is, how can EQUI be cyclical and non-cyclical at the same time? Postal proposes to break down EQUI into two parts; a cyclical rule called DOOM MARKING will mark the NPs that will eventually be deleted, then another rule called DOOM ERASURE will delete only those NPs that are both "doomed" and pronominal.

Of course, a host of problems remain to be solved. The precise statement of DOOM MARKING and DOOM ERASURE is no simple matter, and it is not even clear that there should be only one rule of DOOM MARKING. Moreover, the status of PRONOMINALIZATION itself is not clearly established in the grammar. Ross (1967) claimed that it was a cyclical rule, while Lakoff proposed that it be partly stated as output conditions. Postal's treatment of EQUI requires that Pronominalization be a post-cyclical (or last cyclical) rule. There is of course no a priori justification for believing that all pronominal forms arise through the operation of a single rule or set of conditions. Be this as it may, Postal's evidence suggests rather strongly that the deletion of complement subjects cannot be handled by one rule, and that at least two are required.

Returning now to point (E) above, we recall Postal's Marked Verb Proposal, according to which promise would be marked for subject-subject coreferentiality, persuade for direct object-subject coreferentiality, tell for indirect object-subject

coreferentiality, and ask for an of-phrase-subject coreferentiality. There are no a priori grounds for considering this proposal wrong. However, there are some reasons for suspecting that the above items are not totally unrelated, as a semantic notion like "intention" seems to be involved in all of them. In a somewhat vague sense, a promise is a statement of intent, an act of persuasion causes intent in another person, an act of telling or asking is an attempt to bring about some intention in another person. If syntactic justifications can be found for representing the above verbs with a shared element, we may hope that the four separate constraints will reduce to only one constraint that could be imposed on that element.

In chapter two, I discuss the pertinent features of a theory of language which makes such an endeavor possible. In chapter three, I inquire into the possibility of formulating a solution along the lines suggested above.

Footnotes

¹I assume Robin Lakoff's (1968) phrase structure rules for the expansion of relatives and complements respectively:

NP ----> NP (S)
NP ----> N S

²Postal does not define the kind of infinitivals that he has in mind, but I assume that he means "subjectless infinitival clauses that originate as objects of the immediately higher verb."

³I am using "emotive" in the sense of Kiparsky and Kiparsky (1968).

⁴I am indebted to Perlmutter (1968) for those, although he uses them in a different context.

⁵The problem of whether there should be a modal in imperatives in general and what that modal should be is a vexed one in the literature. Klima (1964) argued for a will, on the basis of tags like won't you? that can follow imperatives. Bolinger (1967) pointed out that other tags were possible too. Lees (1964) argued for a phonologically zero morpheme IMP, which ITTES collapsed with SJC (subjunctive) that is necessary in embedded clauses. The latter required a SJC morpheme to ensure the operation of certain rules, and in order to supply the correct semantic interpretation. With respect to the semantic interpretation, the status of SJC seems to me very similar to that of Q that had been proposed by Katz and Postal (1964) for questions. However, if embedded questions and commands are embedded to a higher verb of questioning or command, and if unembedded sentences of this kind are viewed as embedded to abstract performatives with the same properties, the need for a Q or IMP morpheme in the underlying structure of the embedded clause vanishes. Should such a morpheme turn out to be indispensable for the operation of transformational rules, we might resort to the undesirable solution of introducing it transformationally and subsequently deleting it. It might be argued that a SJC would still be necessary for verbs like say that are ambiguous with respect to imperative force, and in a theory like that outlined by Katz and Postal, this would indeed be required. If we adopt, however, the suggestion made by Weinreich (1966), McCawley (1967) and others, that underlying structures should contain unambiguous terminal elements (lexemes or semantic primes), an SJC in the embedded clause becomes redundant.

⁶The notion of "deep-structure constraint" is extensively discussed in Perlmutter (1968). He argues that obligatory coreference of NPs of the type discussed above cannot be handled transformationally--as Lakoff (1965) had contended--for the coreference relation is not always the same at the stage at which EQUI applies. It appears to be the same, however, at a deeper level, and Perlmutter assumes there is no need to state it at a stage later than the deep structure. One of the most convincing pieces of evidence comes from Bulgarian, where coreference relations must be satisfied but EQUI is precluded; therefore, there is no way to state the restrictions transformationally, unless one is willing to introduce "null transformations."

CHAPTER TWO

PRE-LEXICAL TRANSFORMATIONS AND SEMANTIC PRIMES

Some Objections to the Standard Theory

A number of fundamental assumptions of the Standard Theory of transformational grammar--as it emerges from Katz and Postal (1964) and Chomsky (1965)--have been questioned in recent years by Bach, Gruber, Lakoff, McCawley, Postal himself, and others, who proposed a new approach to linguistic theory that has come to be known as Generative Semantics. Among the Standard Theory tenets with which the Generative Semanticists took issue was the claim that there exists a significant level of deep structure lying at the boundary between semantics and syntax and at which significant generalizations needed to be stated. The Generative Semanticists' criticism contends that the deep structure of the Standard Theory resembles the phonemic level of American structuralism in that both complicate the description unnecessarily and, if their definition is taken literally, they make incorrect claims.

Deep structure was defined by the following properties:

(A) Lexical insertion takes place at this level.

(B) Deep structures serve as input to both the transformational and the semantic components.

(C) Selectional and co-occurrence restrictions are statable at this level.

(D) Fundamental grammatical relations, like subject and object are definable at this level.

(A) is simply incorrect as it stands. McCawley (1967) points out that items like former and latter, which depend on the order of items in surface structure cannot possibly be inserted in deep structure. He also cites an example given to him by Ross, which shows that personal pronouns cannot all be inserted at the same point, due to an English rule which obligatorily collapses two conjoined superficially identical NPs:

- (1) a. Do you know John and Mary? He and she are a
doctor and a teacher respectively.
- b. Do you know John and Bill? $\left\{ \begin{array}{l} *He \text{ and he} \\ They \end{array} \right\}$ are
a doctor and a teacher respectively.

Cases like the above, as well as phenomena like suppletion and inflection, require that the Standard Theory be supplemented with a second lexical look-up, if it is to meet standards of observational adequacy. However, if nothing else is done, higher levels of adequacy will not be reached.

Lakoff (1969) and Postal (1970) argue at great length that important generalizations would be missed if all lexical items were regarded as non-complex and unstructured. Lakoff shows that dissuade is subject to the same derivational constraints as persuade not, and that the facts do not need to be stated twice if the former is allowed to be inserted in place of the latter. Postal

shows that a considerable number of restrictions which must be stated for the verb remind follow rather naturally from restrictions that are independently needed for the predicates strike and like. It appears that certain generalizations can only be captured if we allow items to replace other items.

There is one difficulty here, as the replaced and the replacing items cannot be of the same formal nature. Indeed, lexical items often have idiosyncratic properties, and if both the replacing and the replaced items are viewed as lexical, the theory will sometimes make wrong predictions. This difficulty has been repeatedly pointed out by the supporters of the "lexicalist position." For example, Chomsky (1967) shows that verbs and derived nominals often exhibit different semantic and syntactic properties, and that the existence of a verb does not automatically imply the existence of a nominal and vice versa. However, this difficulty vanishes if the replaced items are abstract constructs with no phonological form and exhibiting some of the semantic and syntactic properties of the corresponding lexical items. This new kind of construct is called "the semantic prime." Therefore, in positing the surface verb remind as derived from the semantic primes strike and like, the linguist must be careful not to assign to the latter two any property of the lexical items strike and like which is not a property of the lexical item remind; also, no idiosyncratic property of the latter should be assigned to the semantic primes, as it would

be carried over to the lexical items strike and like if they, rather than remind, were inserted.

With respect to (B) and (D) above, it became apparent to researchers attempting to account for an increasingly large body of facts, that the deep structure of the Standard Theory was not deep enough. As the deep structure was "receding" towards semantic representation, there came a moment where it was no longer obvious that syntactic deep structure and semantic representation had to be kept distinct. Every time the deep structure was brought closer to the semantic representation, no need was discovered for relating deep structure to surface structure by operations other than transformations. If deep structure is indistinct from semantic representation, the need for projection rules disappears, and the underlying and surface representations can be related by a homogeneous set of operations, namely, transformations. In this way, considerable duplication can be avoided. Postal (1970) points out that the meaning of pork--which is something like "MEAT THAT COMES FROM PIGS"--is represented as a set of semantic markers, while the phrase "meat that comes from pigs"--which has presumably the same semantic representation--is represented as a tree in deep structure. The representing of pork and meat that comes from pigs with two different deep structures is an unnecessary complication of the grammar. The reason is not that the two phrases mean the same thing, but that pork has to be semantically represented as a tree, for semantic representation in terms of unstructured sets of semantic markers

has been shown to be incorrect. Weinreich (1966) pointed out that projection rules take a structured tree as input and produce a "heap" of semantic markers where all the significant relations defined in deep structure are lost. The conclusion seems to be that semantic representation must be internally structured, in other words, it may consist of trees, exactly like the syntactic deep structure. Thus, a formal dissimilarity between semantic and syntactic representations disappears.

Some differences between semantic representations and deep structures remain. In the generative semantic view, semantic representations should resemble logical representations, and would thus make use of devices like constants and variables, propositional connectives, set symbols and quantifiers, predicates, and descriptions of sets and quantifiers. In addition to that, semantic representations must distinguish between the descriptions of sets and individuals that are presupposed and those that are asserted. McCawley (1967) proposes to accomplish this by dividing the meaning of an utterance into a "proposition" and a set of "NP-descriptions." It appears that the categories and units used in semantic representation are not the same as those that appeared in deep and surface structure, as the former makes no use of symbols like VP, PP, etc. Moreover, the relations defined on semantic configurations are different from those defined by deep and surface structures. However, it was shown by people that worked within the framework of a grammar with a level of deep structure that the relations and

categories needed in deep structure itself could not be the same as those that appeared on the surface. Lakoff (1965 and 1968a) suggested that categories like manner adverb and instrumental adverb be transformationally introduced. Fillmore (1968) claimed that categories like VP and PP were unnecessary in deep structure, and that moreover relations like subject and object did not belong to the deep structure, as they could not be consistently interpreted by the semantic component. Therefore, the fact that the relations and categories of the semantic representation differ from those found on the surface comes as no difficulty.

With respect to (C), McCawley (1968c) reports that he knows of no selectional restrictions that depend on purely syntactic information, and that he knows of no semantic information that could not play a part in selectional restrictions. As an illustration of the former claim, consider that there is no English verb that requires a subject pronominalizable as she; as an illustration of the latter, consider how specific the semantic content of the subject of a verb like diagonalize has to be.

The Semantic Primes

The semantic primes, which label the terminal nodes of underlying trees in Generative Semantics, have not been very clearly discussed anywhere in the literature. It seems clear enough that they need not be logical or psychological primes; they must be primes only with respect to the functioning of the grammar. Thus, although some unit of meaning which we tentatively postulate to be

a prime may be further broken down into logically more elementary concepts, we are not justified into postulating the latter as primes unless they can be shown to have some independent linguistic reality (i.e., unless they are independently needed somewhere else in the grammar).

The best way to define the primes that I can think of is to represent them as bundles of semantic and syntactic properties. Among the semantic properties, there would have to be theoretical constructs not too different from Katz & Fodor's semantic markers. This is of course necessary for the operation of selectional restrictions which require semantic information, as I pointed out above. Therefore, the semantic primes are elementary in the sense that they do not exhibit internal structure--i.e., they must not be represented as trees--but they may be complex from a set-theoretical point of view. This decision is similar to decisions in other approaches to transformational grammar. The prime constructs in Fillmore's Case Grammar are the deep cases, but these are not unanalyzable, since they carry features like +Animate (Agent and Dative) or -Animate (Locative and Instrumental).

In addition to the semantic tree that serves as input to the transformational component, the meaning of a sentence has to consist of a set of presuppositions, of topic, and focus.¹ Moreover, the lexical items themselves may contribute to the meaning of sentences, since they may have idiosyncratic properties which cannot be carried over to the primes they replace (on the assumption that the

primes are universal, not language-specific).²

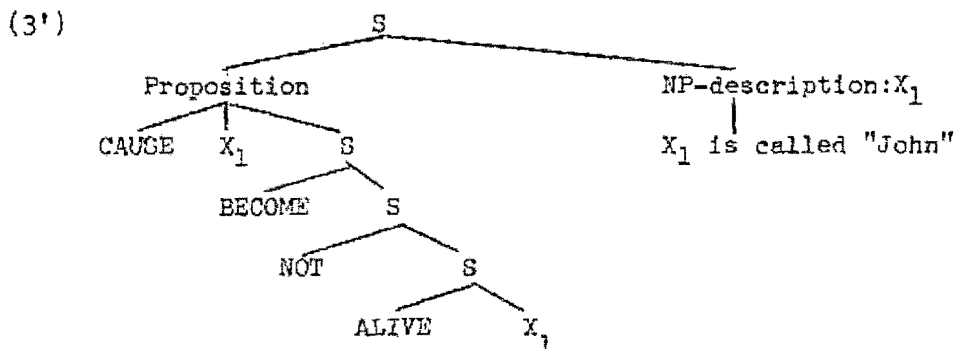
Lexical Insertion

We have seen that lexical insertion cannot be carried out at a single point, in the Generative Semantics grammatical model. McCawley (1968a) considers where insertion could take place. He notes that insertion could not take place at the end of a derivation, for certain operations depend on the presence of specific lexical items, not only their meaning. This follows from the earlier made observation that lexical items have idiosyncratic properties. Thus throw out and eject could probably replace the same semantic configuration, but only the former can be affected by the particle movement transformation.

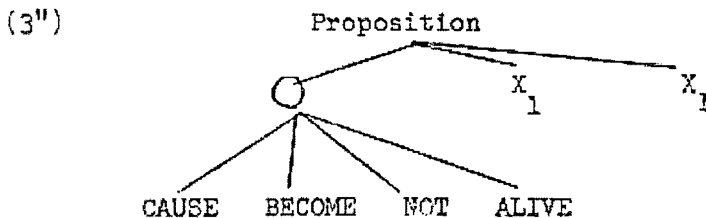
Another possibility that has to be rejected is that all lexical items might be inserted at the beginning of a derivation. To take an example not given by McCawley, many transformations depend on the items they affect being in the same simplex sentence, and one of these is reflexivization. Consider however (3);

(3) John killed himself,

which McCawley would represent as follows:



Reflexivization cannot apply to this configuration, for the two instances of X_1 are not in the same sentence. If we tried to modify the reflexivization rule so that it apply to this configuration, the conditions for its application would become practically unstatable. It is therefore necessary to have a rule of PREDICATE-RAISING which adjoins a predicate to the next higher predicate. This rule causes the S-node which dominated the raised predicate to be deleted by Ross' tree-pruning principle (1966). If PREDICATE-RAISING applies three times, the two instances of X_1 will be in the same sentence and reflexivization will apply. Now, lexical insertion must follow PREDICATE-RAISING, because the material to be replaced is discontinuous before that rule applies. After it has applied, the proposition looks as follows:



and the lexical item kill may replace the semantic material dominated by the circled node. The items John and himself will have to await the rule of reflexivization, otherwise the two instances of X_1 would be replaced by John and a new lexical look-up would be necessary after reflexivization anyway. Since reflexivization is a relatively late rule--it must follow, for example, SUBJECT-RAISING--it follows that some items would be inserted quite late in a derivation.

The PREDICATE-RAISING rule must be optional and be allowed to apply any number of times. Assuming a configuration similar to (3') except that the two symbols denoting individuals are not coreferential, if PREDICATE-RAISING does not apply, a possible output of the derivation will be

(4) John caused Bill to become not alive.

If it applies once, the output will be

(5) John caused Bill to become dead.

If it applies twice, the output will be

(6) John caused Bill to die.

and if it applies three times, the derivation will result in

(7) John killed Bill.

It must be pointed out that the lexicon need not necessarily contain lexical items that can be matched with structures resulting from the free application of PREDICATE-RAISING. However, as McCawley points out, it is not necessary to constrain this rule so that all the structures resulting from its operation be matched by the specifications for some lexical item. In fact, it might be suspected that such an endeavor would prove impossible. All we need is a condition that derivational outputs are well-formed only if all their terminal elements are lexical items.

Some Syntactic Arguments for Lexical Decomposition

Notice that (3') schematically represents the meaning of (3), but some independent justification for its existence must be found, for we do not want to assert that any definition of an item

represents its underlying representation. Such independent justification has been attempted, and I shall cite a few examples.

(a) The almost argument

McCawley mentions a suggestion of Jerry Morgan's to the effect that the sentence

(8) John almost killed Harry

is three ways ambiguous, as it can be understood in one of the following ways:

- (9) a. John almost did something that would have killed Harry.
- b. John did something that came close to causing Harry to die.
- c. John did something that brought Harry close to death.

According to Morgan, the ambiguity can be explained by assuming that almost is generated at three different points, and a prelexical transformation raises it into a higher clause. Schematically, and disregarding all irrelevant details, the underlying structures of the three senses of (8) would be:

- (10) a. almost [John caused Harry to become not alive]
- b. John caused almost [Harry become not alive]
- c. John caused Harry to become almost [not alive]

This argument, although plausible, seems to me vitiated by the fact that

(11) John didn't kill Harry.

is also three ways ambiguous, as it can be paraphrased as

- (12) a. John didn't do anything that would have caused Harry to die.

- (12) b. John did something which didn't cause Harry to die (because, e.g. the bullet missed Harry).
- c. John did something that should have resulted in Harry's death but didn't (as he didn't hit a vital spot).

However, the ambiguity cannot be explained by postulating the underlying structures

- (13) a. not [John caused Harry to become not alive]
 b. John caused not [Harry become not alive]
 c. John caused Harry to become not [not alive]

for these would result in sentences meaning roughly

- (14) a. It is not the case that John killed Harry.
 b. John prevented Harry from dying.
 c. John resurrected Harry.

It is apparent that the ambiguity of (11) need not be explained by NEG-raising, for (14) a exhibits exactly the same kind of ambiguity. Therefore, the ambiguity of (8) is not explained by (10), and the ambiguity of (8) does not prove that kill needs to be represented as complex. Notice that (9) c and (10) c are paraphrases only if John's act is understood as nonintentional. If it is intentional, the two structures exhibit the following slight difference in meaning:

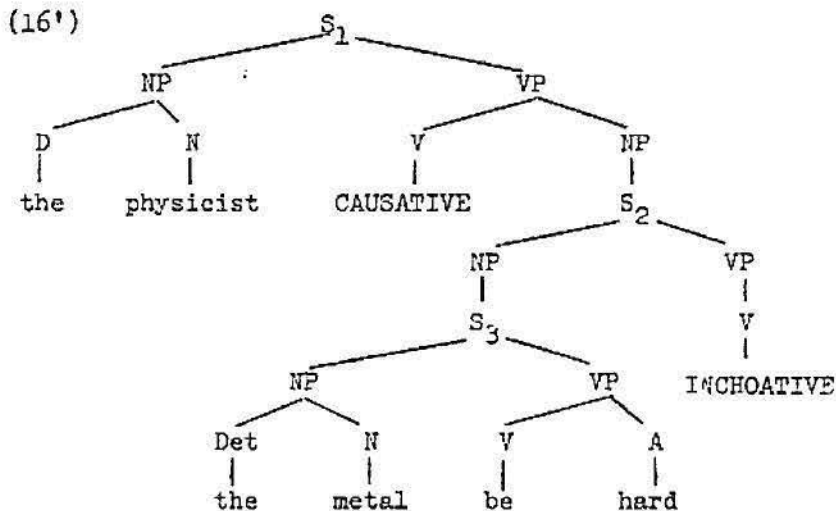
- (15) a. John set out to kill Harry, but only wounded him grievously (which is a possible paraphrase of (8)).
- b. John set out to wound Harry grievously, and achieved his goal (which is a possible paraphrase of (10) c, but not of (8)).

I think we can conclude that the rule of almost-raising does not exist, and that the similarity in meaning between the three senses of (8) and (10)a-c results from near-synonymy of underlying forms.

(b) The Adjectival Degree Argument

Lakoff points out that

(16) The physicist hardened the metal,
should have the following underlying structure (schematically):



In order to prove that S_3 exists, Lakoff points out that (16) is ambiguous between the meanings:

- (17) a. The physicist caused the metal to become hard.
b. The physicist caused the metal to become harder.

This ambiguity follows naturally from the property of certain adjectives of allowing a comparative degree, if we assume that the representation of harden contains an adjective.

(c) The it argument

In order to prove that S_2 exists in (16'), Lakoff points out

that we can say

- (18) The physicist finally hardened the metal, but it took him five years to bring it about.

The antecedent of the second it, he claims, can only be the complement of the causative verb. Notice, however, some difficulties that arise in connection with (19).

- (19) The physicist managed to harden the piece of gold, but it could also have happened to a piece of silver.

I find (19) at least three ways ambiguous, as the antecedent of it can be either the inchoative harden, or the string the physicist harden, or the physicist manage [the physicist harden]. The way the rule that produces such instances of it is formulated by Lakoff, it is an everywhere rule that pronominalizes sentences. However, as Chomsky points out in "Deep Structure, Surface Structure and Semantic Interpretation" (fn. 24), none of the antecedents of it in (19) are sentences. In order to account for the first reading of (19), it must be allowed to refer to constituents other than sentences; but in the remaining two readings of (19), the antecedents are not even constituents at any stage of a derivation (in anybody's grammar, as far as I know).

Chomsky takes this evidence as sufficient for concluding that there is no rule of Pronominalization, and that pronouns should be generated directly by the base component of the grammar, their antecedent being determined by later rules of semantic interpretation. Jackendoff, in his dissertation, goes one step further and proposes

that transformations not be allowed to perform deletions.

Of course, if Pronominalization is allowed to reduce non-constituents, the constraints on the rule become extremely complex and hard to state. But it is not absolutely necessary to increase the power of Pronominalization in this way. I am aware of two proposals for deriving pronouns like the it in (19) transformationally while maintaining the requirement that the antecedent of a pronoun be a constituent. One such proposal belongs to Ross (1969b) and rests on the notion of "sloppy identity." According to the latter, two strings differing only in commanded pronouns may be considered identical for the purposes of deletion (pronominalization being considered a special case of deletion). Sloppy identity enables us to analyze (19) as (19'):

(19') The physicist managed to harden the piece of
gold, but the physicist managed to harden it;
could have happened to a piece of silver_i,

as the two underlined strings differ only in that the second contains a commanded pronoun which does not appear in the first. The second string is a constituent and the transformational version of Pronominalization is salvaged. The second proposal which circumvents the need for base-generated pronouns is due, I believe, to Postal, and consists in the elimination of all many-place predicates from underlying structures. The base generated only one-place predicates which may be put together by later transformations. In this way, any string can be made a constituent at some stage of a derivation.

(d) The Adverbial Scope Argument

Another argument that supports the lexical decomposition of causatives concerns the ability of adverbs to modify either the INCHOATIVE or the verbal prime immediately below the latter (henceforth the Intermediate Predicate).

An example in which a time adverb refers to an Intermediate Predicate is mentioned by Binnick (I reproduce it below as (20a)):

- (20) a. He was jailed for four years.

where the scope of the adverbial phrase for four years is the underlined string in (20) b.

- (20) b. X_1 CAUSED [INCHOATIVE [he] was jailed for four years]].

The scope of the adverb in (20) c, d, e is similar to that in (20) a:

- (20) c. He wounded her grievously.
 d. He broke the glass to smithereens.
 e. He browned the cake lightly.

As I pointed out above, the scope of adverbs may be delimited by INCHOATIVE, i.e., it may consist of the complement of the prime CAUSE, as in (20) f, g:

- (20) f. He opened the door smoothly.
 g. He taught her Spanish quickly.

It should be pointed out that (20) f, g are ambiguous, as the scope of the adverb may be either the complement of CAUSE, or the entire sentence.

(e) The Quantifier Scope Argument

Bach (1968) notes that (21) is ambiguous between a specific

and a non-specific reading of a rich man, and proposes to distinguish the two readings by having an existential quantifier generated at different points in the underlying structure, as in (22) a, b:

(21) She wants to marry a rich man.

(22) a. There is a rich man and she wants to marry him.

b. She wants there to be a rich man and that she marry him.

Given the validity of (22) a as a paraphrase of (21), Bach proposes to explain the ambiguity of (23)--which parallels that of (21)--by decomposing look for as try to find and allowing the generation of the quantifier at different points in underlying structure. The two readings of (23) would then be analyzed as (24) a, b, which is analogous to (22) a, b.

(23) She is looking for a rich man.

(24) a. There is a rich man and she is trying to find him.

b. She is trying there to be a rich man and that she find him.

We can see that Bach establishes a proportion, namely, "as (22) is to (21), (24) is to (23); and as (23) is to (21), (24) is to (23)", which, if sound, would support his proposal for the decomposition of look for. Unfortunately, there are two flaws in Bach's argument, which make it impossible to test the validity of his lexical decomposition claim.

First, (22) b and (24) b are not parallel, as the former is a well-formed string while the latter is not (in view of the fact that try, unlike want, is a COSUB).

Secondly, both (22) a and (22) b are incorrect paraphrases of (21). Before showing this, I shall replace (21) and (22) by (21') and (22') respectively, as (21) is not two-way, but three-way ambiguous, and this triple ambiguity is not directly relevant to the Specific/Non-Specific distinction which Bach is trying to account for. Indeed, on the Specific (i.e., referential) reading, the NP a rich man is in a position of referential opacity, and the description may belong to either the subject or the speaker of the sentence. This problem does not arise in (21'), where the subject and the speaker are one and the same person.

(21') I want to marry a rich girl.

(22') a. There is a rich girl and I want to marry her.

b. I want there to be a rich girl and that I
marry her.

That the specific reading of (21') is not a genuine paraphrase of (22') a becomes clearer when we negate the two sentences:

(21'') It is not the case that I want to marry a
(specific) rich girl_i.

(22'') a. It is not the case that there is a (specific)
rich girl_i and that I want to marry her_i.

(21'') is true just in case I want to marry her_i is false, while (22'') a is true just in case there is a (specific) rich girl_i and I want to marry her_i are not both true. Notice that (21''), unlike (22'') a, necessarily commits the speaker to the belief that there is a (specific) rich girl_i is true. As both (21') and its denial (e.g., (21'')) commit the speaker to the belief that the rich girl

in question exists, we may conclude that there is a (specific) rich girl, constitutes a presupposition of the Specific (i.e., referential) reading of (21'), and is not a part of its meaning, as Bach claims.

With respect to the Non-Specific reading of (21'), we can see that it is not a paraphrase of (22') b applying the test of negation:

(21'') It is not the case that I want to marry a rich girl (whoever she may be).

(22'') b. It is not the case that I want there to be a rich girl (whoever she may be) and that I marry her.

(21'') is true if I want to marry a rich girl is false, while (22'') b is true if I want there to be a rich girl and I want to marry her are not both true.

It is interesting to note that no presupposition as to the existence of at least one rich girl in the world accompanies the Non-Specific reading of (21'). Therefore, (22') b is even more incorrect than (22') a as a paraphrase of (21'), for the statement there is a rich girl is neither a presupposition nor a part of the meaning of Non-Specific (21'). In order to convince ourselves that the assertion of the latter does not commit the speaker to the belief that there exists (at least) one rich girl in the world, consider the following situation:

John sees Bill scrutinizing the pavement carefully and asks him what he is doing. Bill answers: "I am looking for a 100 dollar-bill." John joins Bill in his search, but, after a couple of fruitless hours, asks him: "Are you sure you lost one hundred dollars here?", at which Bill replies: "Did I ever tell you that I lost a 100 dollar bill? I merely said I was looking for one!"

The humor results from the fact that John was thinking of a 100 dollar-bill specifically while Bill was thinking of it non-specifically. It is clear that Bill had no reason to presuppose that there was any money lying around, he merely hoped he might be lucky (perhaps because he had found money in that place before, or for some other reason). In fact, he could have said (23):

- (23) I am looking for a \$100 bill, although I am not sure that there is one to be found.

We have seen that there is a rich girl is neither asserted nor presupposed by Non-Specific (21'). One might be tempted to believe that the existential statement constitutes the deleted protasis of a conditional, so that the source of Non-Specific (21') is something like (24), but this would be incorrect, in view of the non-synonymy of (21') and (24)--which becomes clearer under negation in (25).

- (24) I want to marry a rich girl, if there is one.

- (25) a. I don't want to marry a rich girl.

- b. ?I don't want to marry a rich girl, if there is one.

The conclusion seems to emerge that there is no trace of an existential statement in the underlying representation of Non-Specific (21'). We recall that an existential statement turned out to occur in the underlying representation of Specific (21'), but as a presupposition only. Therefore, Bach's Quantifier scope argument is basically invalid and cannot be used to support the decomposition of look for as try to find, despite the intuitive appeal of the proposal.

Conclusions

In the preceding pages, I have considered the merits and the demerits of a number of arguments advanced in favor of the lexical decomposition hypothesis. We have seen that some arguments were questionable and that even the stronger ones were not conclusive. Despite this, I shall assume the essential validity of Generative Semantics in what follows. In particular, Chapter III will make proposals for the decomposition of some of the COSUB verbs. I shall attempt to offer semantic and syntactic justification for the primes I introduce.³

Footnotes

¹Some interesting problems arise in this connection. Consider, for example, the question whether topicalization should be allowed to change meaning. One of the pairs of sentences treated as transformationally derived in Case Grammar is

- (i) a. Bees swarm in the garden.
- b. The garden swarms with bees.

However, they are not paraphrases, for b, but not a, implies that the garden is full of bees. The problem is whether to attribute the difference to topicalization or to a distinction between the underlying representations of the two sentences.

²The type of idiosyncratic semantic lexical feature that comes most easily to mind is that which Weinreich (1966) called "transfer-feature". Thus, it seems to me that the adjectives addled and rotten are synonymous on at least one reading, except that the former is said of either an egg or a head while the latter can be predicated of a larger class of objects. It would not do to set up two separate primes one of which would be predicated of either eggs or heads, for there is no guarantee that a prime of the latter type would be needed in any language other than English. If, however, we want to represent all of the meaning in the underlying structure and prevent lexical insertion from contributing semantically, we must require that addled be inserted for a configuration like NOT IN GOOD CONDITION plus the configuration SAID OF AN EGG OR HEAD.

³My justification will be essentially limited to the Intermediate Predicates. CAUSE is hard to justify in COSUBs, as one of the best available tests--the one involving adjectival degree--is inapplicable. As for TRY, I do not know of a satisfactory test.

CHAPTER THREE

THE SUBJECT-SUBJECT PROPOSAL

Semantic Arguments for COSUB-Decomposition

In this chapter, I take up Postal's Marked Verb Proposal, which I wish to claim misses a generalization. I shall attempt to show that the correct controller of most (possibly, all) COSUB verbs can be invariably specified as the subject of the sentence immediately above the deletee in underlying structure, provided the lexical decomposition hypothesis of generative semantics is adopted.

At first sight, the COSUB verbs look like a rather heterogeneous collection. Among them, we find verbs of promising, of command, of request, and a large number of causatives. According to Karttunen's taxonomy, some are implicatives, some are IF-verbs, some are ONLY-IF verbs, and some are neither. This latter fact should not be too distressing, however, for there is evidence that the COSUBs are largely independent of Karttunen's classification. Thus, the Subject-Subject Proposal in effect makes the claim that for any lexically decomposed COSUB verb, the Intermediate Predicate is also a COSUB. We can easily convince ourselves that a COSUB verb and its corresponding Intermediate Predicate need not belong to

the same class, in Karttunen's system (for a schematic presentation of the latter, see chapter one, page 28). For example, few people would dispute (I think) that (1) can be naturally analyzed as (2):

(1) I enabled John to leave.

(2) I caused John to come to be able to leave.

Notice that able is an ONLY-IF verb, but enable is not. Indeed, consider (3):

(3) a. *John was not able to leave, but he left anyhow.

b. I did not enable John to leave, but he left anyhow.

(3) a implies that John did not leave, while no implication as to what John did follows from the assertion of (3) b.

On the other hand, there are cases when a causative COSUB and its corresponding Intermediate Predicate must belong to the same Karttunenian class. This seems to be the case for the IF-causatives (but see footnote 4).

I suggested above (chapter one, page 27) that COSUB verbs may share the semantic feature of being oriented towards future actions exclusively. If this is correct, the COSUB verbs will turn out to be a semantically homogeneous class. Notice that the COSUB property itself appears to be violated in some cases. Thus, although (5)-(7) are unacceptable, (8)-(10) are perfectly O.K.

(5) *I forced John for Mary to go.

(6) *I am able for my father to pilot a plane.

(7) *I persuaded Mary for Jill to leave.

(8) I intend for Mary to leave.

(9) I asked Mary that Sarah should leave.

(10) I promised Bill that John would leave.

Perlmutter makes a rather convincing argument that in the above cases the complement is in fact embedded inside a sentence whose predicate is let or get and whose subject is coreferential with some NP in the matrix sentence. Apart from the fact that this provides the correct semantic interpretation, Perlmutter advances four syntactic arguments, two of which I mentioned in chapter one, pages 22-23. For ease of reference, I list all four below. Perlmutter points out that we were misunderstood is ambiguous between a one-time and a durative meaning, but that only the former is possible if the sentence is embedded to the verb get. The same lack of ambiguity, suggesting an intervening get-sentence, is observable if the sentence is embedded to any of the main verbs in (8)-(10). Another good argument is that these verbs do not embed statives, but an embedded passivized stative is correct, e.g.:

(11) a. *I intend to know the answer.

b. I intend to be known as "the scourge."

which becomes explicable if we derive (11) b from (12)

(12) I intend to get people to know me as "the scourge."

for get--and causatives in general--is not a COSUE verb.

His third argument is that the passivized agent of a verb like misunderstand can only be a collective noun or a plural but not a singular or a conjunction of singulars both when the matrix verb is get or when it is one of those in (8)-(10) (see example (28) in chapter one). The difficulty with this constraint is that it

seems to be highly restricted dialectally (I have in fact been unable to locate even one informant willing to agree with the paradigm in (28), chapter one).

Perlmutter's fourth argument is probably wrong. He points out that we do not find certain "emotive" adverbs in the complements of get, and that this restriction is shared by the COSUB verbs when embedding a passive and when the deep-structure COSUB condition is apparently violated, e.g.:

(13) *We got the doctor to examine him cleverly.

(14) *We intend to be examined cleverly.

However, (14) proves nothing, for the restriction holds even when the complement is active, and there is no reason to suspect an intervening get in (15):

(15) *The doctor intends to examine us cleverly.

I think that emotive adverbs are barred with COSUB verbs in general, and causatives like get fall in this category.

As I pointed out earlier, there are nevertheless two, possibly three, good arguments, which support the semantic intuition of an intervening get fairly well.

The problem to be considered next is whether it is possible to decompose the critical verbs in a natural way with the result that COSUB verbs would be explained by the Subject-Subject Proposal in relation to a small number of Intermediate Predicates. We have seen that intend is a COSUB verb, and there are good grounds to suppose that a prime like INTEND is part of the meaning of persuade

and promise. Persuade has already been analyzed in the literature as CAUSE TO COME TO INTEND, and I think that a reasonable analysis of X promises Y to S is X CAUSES Y TO KNOW THAT X INTENDS TO S; this analysis is not complete, for it does not specify that the statement of intention binds X vis-à-vis Y, and this specification is absolutely necessary, or the combination CAUSE TO KNOW could be replaced by an item like declare, which is not a COSUB. The problem is that I know of no good way to represent this fact. It seems clear to me that the binding of the speaker is not a presupposition, but a result of the speech act. Therefore, a complete representation of the sentence in question would perhaps be X CAUSES Y TO KNOW THAT X INTENDS S AND THEREBY S COMES TO BE BOUND TO Y, or possibly X CAUSES X TO COME TO BE BOUND TO Y IN CAUSING Y TO KNOW THAT X INTENDS TO S. The difficulty is that the source of the in-phrase cannot be represented satisfactorily in the latter proposal, and in the former, it is not clear to me how the material CAUSE TO KNOW together with the sentence introduced by AND could be grouped together in a non-ad hoc way in order that the item promise be insertable. Disregarding such formal problems for the time being, we notice that the analysis proposed above for persuade and intend removes the need to mark these two items idiosyncratically, since both are subject to the subject-subject constraint; that is, the complement subjects of both verbs need only be coreferential with the subject of the Intermediate Predicate, which is INTEND in both cases. Notice that the difficulties mentioned in connection with

the lexical decomposition of promise need no longer concern us, for we can refrain from decomposing promise and restrict decomposition to persuade; in this case, the Subject-Subject constraint holds all the same.

Alternatively, if we do decompose both promise and persuade, the Subject-Subject constraint is not the only possible explanation, for Rosenbaum's minimal distance principle is also satisfied. I prefer, however, to retain the Subject-Subject Proposal, as it furnishes something like a semantic explanation, provided that the notion of deep (or "logical") subject can be satisfactorily defined in linguistic theory. As for the minimal distance principle, we saw in chapter one, E , that there is no obvious reason why it should work. Put differently, the Subject-Subject solution provides an intuitively satisfactory explanation, while the minimal distance proposal offers only a purely formalistic one.

In a grammar that does not allow lexical decomposition, persuade must be analyzed as taking a subject, an object and a complement. The object is a necessary category, for if we view it as part of the complement, we cannot explain why the meaning of the sentence changes when this so-called complement is passivized. Rosenbaum had a valuable insight when he noticed that persuade and believe were different in that the passive version of the apparent complement of the former, but not of the latter, failed to be a paraphrase of the active. This led him to posit an additional object--coreferential with the complement subject--for persuade, but not for believe.

This surface object captures the information that the subject acts directly upon the object in achieving its goal, in contradistinction with a causative verb like bring about, which does not specify who the agent acts on in attaining his goal. Given the lexical decomposition proposal for persuade, the information that the agent acts directly on the patient (which ultimately becomes a surface object) is captured by the fact that the patient is the logical subject of INTEND, and that INTEND has no other non-sentential argument; therefore, the subject of the higher predicate CAUSE can only bring about the situation described by the complement by acting on the subject of the intervening INTEND-sentence. The subject of INTEND becomes the surface object of persuade by SUBJECT-RAISING and PREDICATE-RAISING. The SUBJECT-RAISING rule makes it the subject of the higher INCHOATIVE, and, on the following cycle, the object of the prime CAUSE. The PREDICATE-RAISING rule groups predicates together, so that decide be insertable for COME TO INTEND and persuade for CAUSE TO COME TO INTEND. In the semantic representation of bring about, the prime CAUSE directly commands the complement without any intervening clause. Therefore, no information is furnished as to who the "causer" acted upon.

It is my claim that every COSUB verb has a semantic representation identical or including that of persuade, except that the Intermediate Predicate may be different. That is, every verb at issue is decomposable as CAUSE TO COME TO X, in which "X" may,

but need not be, INTEND. However, X must exhibit the Subject-Subject constraint. This claim is, of course, an empirically falsifiable one, and not without difficulties (especially for the IF-verbs, as pointed out in footnote 4 to this chapter).

As for enable, allow, and compel, I propose BE ABLE TO, BE FREE TO and HAVE TO as Intermediate Predicates respectively. Of course, these primes should not be confused with the corresponding lexical forms, and those interested in a definition of the primes used in this thesis can find it in Appendix I. It suffices, at this point, to stress that all complex verbs with the Intermediate Predicate BE ABLE TO need not have the same meaning. Thus, empower and enable are not synonymous, but the common core of meaning includes the information that the surface object of either verb is given the possibility to do something, in the former case, by being conferred a necessary degree of authority, in the latter, by having certain obstacles removed from his path. The prime BE ABLE TO is therefore neutral with respect to the kind of ability its subject acquires.

The prime BE FREE TO is somewhat different from BE ABLE TO semantically. The distinction is reflected in the distinction between allow and enable. In allow, the subject removes from the path of the object only those obstacles that depend upon the subject, while in enable, the subject is understood to have removed all the existing obstacles.

The problems related to HAVE TO are discussed in footnote 4 to this chapter.

IF-causatives must, I believe, be distinguished with respect to the degree of resistance on the part of the patient that the agent had to overcome. The reluctance of the patient must somehow be represented in the semantic representation or in the features of the lexical items. I have not investigated whether this information should be given at the semantic or lexical level. There are undoubtedly specifications that must be considered idiosyncratic and given lexically. For example, causative have has the special property that coreferentiality of its subject to its complement subject results in oddity, but only if the predicate of the complement is non-stative. Thus, (16) is odd, although (17) is not:

(16) ?I had myself open the door.

(17) I had myself smeared with mud all over.

This property of have is surprising, as causatives exhibit no coreferentiality restrictions in general (it is quite all right to say I made myself write the story, I forced myself to stay awake, although I compelled myself to look at the picture is somewhat funny).

The reader will notice that I have not yet tackled Postal's verbs describing non-declarative verbal performances, like beg, ask, request, order, etc. The reason is that it is not obvious, on a purely semantic basis, whether the common core of meaning of the verbs of request or command should be represented as TRY TO CAUSE TO COME TO INTEND or as TRY TO CAUSE TO COME TO HAVE TO. I shall attempt to show below that a choice is suggested by some syntactic

phenomena, but, at this point, whichever solution we choose would satisfy the Subject-Subject requirement.¹

An interesting feature that emerged from the above analysis is that the semantic primes that immediately command the complement, namely INTEND, BE ABLE TO, BE FREE TO, and HAVE TO are close in meaning to the non-epistemic reading of the English modals will, can, may and must, respectively. This suggests that the core-differentiality constraints that we have seen are, after all, modal constraints. But my proposal is surely not equivalent to Postal's, for he was concerned with surface modals, occurring in actual sentences, while I am concerned with abstract predicates with modal meaning. Another important difference between Postal's proposal and mine is that his solution covered only verbs of oral performance, and could not be extended to items like compel without considerable unnaturalness; in my proposal, it is a superficial fact that certain verbs allow surface modals to appear in their complements while others do not. Moreover, Postal was led by his focusing on surface modals to positing a distinction between ask and tell, based on the distinction between would and ought. As I pointed out on page 25, this does not constitute a satisfactory explanation.

The proposal that I am making comes very close to the claim made by Robin Lakoff in her dissertation, according to which some modals are automatic consequences of commanding verbs and must be considered meaningless complementizers. It is rather hard to decide whether complementizers are always meaningless. The problem

is analogous to that of the head noun The fact that the Kiparskys thought had to appear in the deep structure of the complements of the so-called "factive predicates." Of course, if the head noun is always automatically present, given a certain type of matrix verb, it can be introduced transformationally. But the Kiparskys thought that there are predicates neutral with respect to factivity, and that the head noun had to be in the deep structure, in order to explain the possibility of having factive as well as non-factive meanings. Alternatively, it is possible to claim that there are no neutral predicates, and that there are in fact two homophonous verbs, one factive and the other non-factive. The distinction is sometimes a subtle one, and not at all easy to make. In the cases that interest us here, it is fairly easy to believe that there are two verbs tell, one a declarative and the other a verb of command, or that there are two verbs persuade, analyzable as CAUSE TO COME TO INTEND and CAUSE TO COME TO BELIEVE.

But consider now the verb know in the following sentences:

(18) I know how I should eat.

(19) I know how to eat.

At first blush, (18) and (19) seem to be paraphrases and even transformational variants of a single underlying structure. I think they are semantically distinct, as the complement of (18) is timeless, while that of (19) is future with respect to the time of the utterance. In any event, this is supported by syntactic evidence when we try to use the past in the complements:

(20) I know how I should have eaten.

(21) *I know how to have eaten.²

The paradigm exhibited by (18)-(21) constitutes a clear counter-example to Postal's claim that infinitivals with subjunctive meaning are derived from sentences containing modals. One thing seems clear: the modal should and the infinitivals are not identical complementizers. A rather difficult question that arises is whether the verb know in (18) and (19) is the same verb, the subtle distinction in meaning being supplied by the complementizers, or whether the complementizers are meaningless and there are two different verbs know. Some evidence in favor of the latter possibility is furnished by the verb be aware of, which can be used to paraphrase (18) but not (19):

(22) I am aware of $\left\{ \begin{array}{c} \text{how} \\ \text{the way in which} \end{array} \right\}$ I should eat.

(23) ?I am aware of $\left\{ \begin{array}{c} \text{how} \\ \text{the way in which} \end{array} \right\}$ to eat.

This suggests that there are in fact two items know, only one of which is synonymous with be aware of.

Notice that the verb show, which I propose to analyze as CAUSE TO COME TO KNOW (following Baker), exhibits the same paradigm as know:

(24) I showed John how he should eat.

(25) I showed John how to eat.

(26) I showed John how he should have eaten.

(27) *I showed John how to have eaten.³

(24)-(27) suggests that there are two verbs show, as there are two verbs know. This hypothesis is supported by the existence of the item demonstrate, which means CAUSE TO COME TO BE AWARE OF, and has only the meaning of show in (24) and (26), but not (25) and (27):

(28) I demonstrated to John how he should eat.

(29) ?I demonstrated to John how to eat.

On the other hand, there is evidence that would lead us to suspect that the future orientation of (19) and (25) is imposed by the complementizer rather than associated with the commanding prime. Thus, although the subject of eat is understood as John, not I, it can also be understood as a generic. Such ambiguity is not possible with items like order and force.

Syntactic Arguments for COSUB decomposition

In proposing the lexical decomposition of a number of verbs in specific ways, I have used semantic arguments alone. However, such arguments are not sufficient, for an adequate semantic description could also be achieved by assigning semantic markers of the Fodor & Katz variety to lexical items and letting an interpretive semantic component work on such markers. In order to force a decision between interpretive and generative semantics, it is at least necessary to show that syntactic properties of putatively complex lexical items are shared by other items whose

meaning we wish to claim is included in that of the more complex ones.

(a) Previously proposed tests

I mentioned, in chapter two, three attempts to prove the existence of a prime CAUSE and one attempt to prove the existence of a prime TRY. In connection with the first three, one is inapplicable to the present situation, as it concerns complements whose predicates are adjectives capable of taking degrees, while our complements must contain non-stative verbs. Of the remaining two, the almost-test is wrong, and the one involving pronominalization of sentences with it is somewhat dubious, as I pointed out in chapter two. Moreover, this test cannot be applied to all causatives, for bring about is not identical to CAUSE. Indeed, bring about implies that the situation that came about took some time in doing so, and that moreover "the causer" encountered some resistance in bringing about the situation. We can test this by noting that verbs that can be decomposed into bring about and a complement can also be embedded to a verb like strive. For example,

(30) I strove to harden the metal.

(31) I strove to persuade him to go.

And indeed, the it-test works with persuade, as we can say I finally persuaded him to leave, but it took me some sweat to bring it about. However, it does not work with murder and assassinate, which, according to Lakoff and McCawley, are lexically complex causatives:

- (32) ?I $\left\{ \begin{array}{l} \text{assassinated} \\ \text{murdered} \end{array} \right\}$ the premier, but I do not recall when I brought it about.

The oddity of (32) follows rather naturally from the oddity of (33):

- (33) ?I strove to $\left\{ \begin{array}{l} \text{murder} \\ \text{assassinate} \end{array} \right\}$ the premier.

That both the it-test and the strive-test fail with allow and empower should come as no big surprise, for one is not supposed to encounter too much resistance in allowing or empowering someone to do something. On the other hand, enable passes both tests much more successfully, as the reader can convince himself, for precisely the opposite reason. Indeed, consider the paradigm exhibited in (34):

- (34) a. I $\left\{ \begin{array}{l} ?\text{allowed} \\ ?\text{empowered} \\ \text{enabled} \end{array} \right\}$ him to leave, but I do

not recall when I brought it about.

- b. I strove to $\left\{ \begin{array}{l} ?\text{allow} \\ ?\text{empower} \\ \text{enable} \end{array} \right\}$ him to leave.

If these difficulties had not existed and if sentence pronominalization with it had been a precyclic rule only, the it test could have been used to decide whether promise should be viewed as lexically complex or not. That is, we could have used (35)

- (35) I promised him to leave, but he did not think that I meant it.

to claim that it cannot stand for I LEAVE, nor for I PROMISE HIM TO LEAVE, and not even for I WILL LEAVE, for we saw above that

modals cannot be considered as the sources of subjunctive infinitives. Therefore, the only possible antecedent for it would have been I INTEND [I LEAVE]. Unfortunately, the antecedent of it can just as well be the surface string to leave, for if someone who just heard me say (35) asks me what didn't he think that you meant?, a perfectly good answer is to leave. This is possible even if promise is non-complex, for it-sentence pronominalization is an everywhere rule. Notice that the answer to leave is equivalent in meaning to the possible answer that I intended to leave, for to leave contains a surface subjunctive which signals the existence of a higher (possibly abstract) verb of intention. But given the everywhere-character of it-sentence pronominalization, no conclusion as to complexity of promise is possible.

It turns out that none of the available tests for proving the presence of CAUSE is of much help. This does not mean that the CAUSE analysis is wrong, and I believe it is not, but only that better tests will have to be found.

In connection with the prime TRY, the only argument that I have read of in the literature is the one offered by Bach in connection with the ambiguity of (36) and (37):

(36) She is looking for a man with a big bank account.

(37) She is trying to find a man with a big bank
account.

As I argued in chapter two, this argument does not hold much water either. In view of the above, I shall not try to justify my having

posited the primes CAUSE, TRY and INCHOATIVE, for I know of no good syntactic arguments in their favor.

(b) Tests for Intermediate Predicates

I believe that some evidence can be offered in support of the so-called "modal primes" (in the cases I consider, the Intermediate Predicates). My arguments will be based on the claim that certain properties of the modal primes are shared by the lexical items that supposedly contain them. Let it be clearly understood that such evidence is never final; it merely increases the chances that the primes in question be contained in the putatively complex lexical items.

I shall offer four pieces of evidence. The first three will involve properties common to all four primes and to the corresponding complex lexical items. The fourth attempts to distinguish between the primes. It is indeed unfortunate that most arguments do not distinguish between the primes; on the other hand, the primes are sufficiently distinct semantically for it to be clear that if enable is lexically complex, the chances are that its structure is CAUSE TO BE ABLE rather than CAUSE TO INTEND.⁴

The first argument is that the four primes, as well as the putatively complex items, are future-oriented. Therefore, both (38) and (39) are ill-formed.

(38) *I { am able
am free
have
intend } to have gone.

- (39) *He { enabled
allowed
compelled
persuaded } me to have gone.⁵

The second argument is that neither the primes nor the complex items can embed a stative:

- (40) *I { am able
am free
have
intend } to be tall.
- (41) *He { enabled
allowed
compelled
persuaded } me to be tall.

The third argument is that emotive adverbs cannot occur inside the complements of either the primes or the complex lexical items;

- (42) *I { am able
am free
have
intend } to leave { oddly
reluctantly
intentionally } .
- (43) *He { enabled
allowed
compelled
persuaded } me to leave { oddly
reluctantly
intentionally } .

The fourth argument concerns the fact that deep structure coreferentiality constraints can sometimes be violated on the surface (cf. Perlmutter's dissertation). Such violations were explained by Perlmutter by the presence of an intervening sentence with let or get where the constraints held and which was later deleted. Observe, however, that although all the primes and the complex lexical items at issue can embed get or let, the sentence that contains one of these two verbs cannot always be deleted. It is most interesting that the paradigm exhibited by the primes is paralleled by that of

the complex lexical items. It will be noted that the deletion of the intervening sentence is sometimes permitted if coreferentiality is superficially satisfied through the passivization of the complement, but not when coreferentiality is violated on the surface; Perlmutter noticed that try falls in this category.

In other cases, deletion is out altogether:

- (44) I am able { *to be beaten by Jim
*that Martha should leave } .
- (45) I { am free } { to be beaten by Jim
have } { *that Martha should leave } .
- (46) I intend { to be beaten by Jim
that Martha should leave } .

Consider now the behavior of the putatively complex lexical items:

- (47) He enabled me { *to be beaten by Jim
*that Martha should leave } .
- (48) He { allowed } me { to be beaten by Jim
compelled } { *that Martha should leave } .
- (49) He persuaded me { to be beaten by Jim
that Martha should leave } .

The correspondence of the two paradigms is apparently perfect.

Observe, however, that some problems arise in connection with persuade, as he persuaded me that Martha should leave does not mean he caused me to intend that Martha should leave, but rather he caused me to believe that Martha should leave. I pointed out earlier that persuade is an ambiguous item, and the fact that none of the two sentences in (49) is ambiguous stands in need of

explanation. A theory of language that does not incorporate lexical decomposition would note it as an isolated fact about persuade that, on one reading, it requires the for-to complementizer and on the other reading, the that complementizer. On the other hand, a theory of language that does incorporate lexical decomposition would attempt to explain the behavior of persuade on the basis of the behavior of BELIEVE and INTEND.

Consider the first sentence in (49), in which we only get the reading CAUSE TO INTEND. The reading CAUSE TO BELIEVE is out, because there is no sentence *I believe to be beaten by Jim. This sentence is ungrammatical for two reasons: (a) believe with for-to disallows its complement to be future-oriented, i.e., it disallows a subjunctive infinitival; (b) believe disallows EQUI and requires SUBJECT-RAISING (when the complementizer is for-to). Therefore, the only way to make the above sentence grammatical is to say I believe myself to have been beaten by Jim. Notice that (b) explains why we do not get he persuaded me to have been beaten by Jim with the reading CAUSE TO BELIEVE: indeed, we recall that the surface object of persuade is the subject of INTEND or BELIEVE in underlying structure, and that it becomes a surface object by RAISING. However, if the complementizer of BELIEVE is for-to, the subject of have been beaten will have become the object of BELIEVE through the application of RAISING on an earlier cycle. At this point, BELIEVE has a subject, an object and a complement, and if BELIEVE is to be ultimately grouped with the higher CAUSE by PREDICATE-RAISING, its

three arguments must move along with it. However, there is no rule that will raise two NPs to object position. That is, there is no rule that will yield *He persuaded me myself to have been beaten by Jim, and moreover there is no rule that will delete myself to yield *He persuaded me to have been beaten by Jim. Thus, we have an explanation for the non-ambiguity of persuade with for-to.⁶

Consider now the second sentence in (49), which has only the reading CAUSE TO BELIEVE. There is apparently no reason why the other reading should be blocked. The only device that I know of that can do the job is a "transderivational constraint", of the kind recently proposed by Perlmutter and Lakoff. Transderivational constraints are extremely powerful devices, and I do not know whether they must be part of a grammar. However, should this turn out to be so, we would then have an additional argument that persuade is not an atomic unit, but rather arises through a derivation in which prelexical transformations operate on elementary semantic primes.

We shall conclude our discussion of the lexical decomposition of COSUB verbs by considering the behavior of verbs of ordering and request in relation to the paradigm of (44)-(46):

(50) He $\left\{ \begin{array}{l} \text{ordered} \\ \text{told} \\ \text{begged} \end{array} \right\}$ me $\left\{ \begin{array}{l} \text{to be beaten by Jim} \\ \text{*that Martha should leave} \end{array} \right\}$.

(51) He asked me $\left\{ \begin{array}{l} \text{to be beaten by Jim} \\ \text{that Martha should leave} \end{array} \right\}$.

We can see that most verbs of ordering behave as if they contained HAVE TO, except ask, that behaves as if it contained INTEND.

Earlier (page 66), I maintained that there was no justification for treating ask as different from the other verbs, and that Postal's positing of a separate modal constraint for ask was unmotivated. It turns out, however, that Postal was right, and that ask is apparently different from the other verbs of ordering. This conclusion must, of course, be viewed as tentative until more evidence capable of discriminating between the four modal primes is produced. If such evidence turns up, it should cause no big surprise, for ask, even on the interrogative reading, has some surprising properties.

We recall the paradigm mentioned in chapter one and which I reproduce below:

(52) I asked John to leave.

(53) I asked John when to leave.

It seems that ask is a verb of request in (52) and an interrogative in (53). As interrogatives do not appear to be future-action-oriented, it is not obvious why the subject of leave should be understood only as I but not as John in (53). We recall that McCawley espoused the proposal (originally made by Jerry Morgan, I believe) that interrogative ask be analyzed as ask (or request) to tell, and suggested that (53) be derived from (54):

(54) I_i asked $John_i$ to tell me_i (the answer to the question) when I_i should leave.

The only difficulty with this proposal is that it does not explain why me and the second I should be coreferential, for telling someone the answer to a question seems to be a declarative performance.

I think we can eliminate this difficulty in light of the discussion on pages 67-69, which led to the conclusion that modals and infinitives are distinct complementizers, and that only the infinitive is future-action-oriented and therefore requires a unique controller. We must therefore modify (54) by deleting the answer to the question and by replacing should with an infinitive. In the new version of (54), the complement of tell becomes future-action-oriented, a point supported by the ungrammaticality of (55):

(55) *I asked John to tell me when to have left.

If the modified version of (54) is indeed the source of (53), then the ungrammaticality of (55) would lead us to predict that (56) will also be ungrammatical, which is precisely what turns out to be the case:

(56) *I asked John when to have left.

Footnotes

¹For some problems arising in connection with the class of verbs mentioned in this paragraph and their implications for the validity of the Subject-Subject Proposal, see the Epilogue to this chapter.

²Notice that the ungrammaticality of (22) is not due to the fact that know embeds a stative (have). Indeed, (i) is grammatical while (ii) is not.

(i) I know where John has been living since 1950.

(ii) *I know where to have been living since 1950.

³A possible alternative explanation for the paradigm (25)-(28) might be that (25) and (26) differ semantically in that the former suggests a particular occasion when eating takes place while the latter is timeless. In that case, (28) could be semantically incongruous rather than syntactically deviant; indeed, the timelessness associated with the infinitival complementizer is incompatible with the past tense.

⁴It constitutes a weakness in the Subject-Subject Proposal that I have been unable to find lexical equivalents for the Intermediate Predicates of IF-causatives. The closest we can get to such an Intermediate Predicate is to select have to, which looks like an IF-verb up to a point, but does not make it all the way. Thus,

(i) a is unacceptable, but (i) b is not:

(i) a. *I had to go, but I did not go.

b. I had to go, but Mary prevented me.

The only way out of this difficulty is to posit a prime HAVE TO which differs from have to in being an IF-predicate. This solution, although unfortunate, is not without precedent. For example, Leroy Baker analyzes learn as come to know and teach as cause to come to know in his doctoral dissertation. However, learn and teach are non-factives while know is a factive, and Baker's analysis seems to require a non-factive KNOW which happens not to be lexicalized in English. Such a situation is undesirable, as it weakens arguments that put forward shared constraints of some lexically complex verb and its immediate predicate. Indeed, as we cannot test the acceptability of sentences containing primes, we are forced to use the corresponding lexical items instead. That is, we are forced to use examples with know and have to, when we would like to use KNOW and HAVE TO respectively. As I pointed out above, this weakens certain claims that we may want to make, but I am not aware of a more satisfactory solution at this point.

⁵Notice that, due to the ambiguity of the infinitive perfect, it is necessary to add a past time adverb in order to make (i) and (ii) truly unacceptable. In fact, the acceptability of (i) and (ii) depends on the continuation:

(i) I intend to have left { by tomorrow
*yesterday }

(ii) He persuaded me to have left { by the following evening
*on the previous morning } .

⁶There is one embarrassing fact which weakens the claim that INTEND is the Immediate Predicate of persuade. Thus, (i) is acceptable, but (ii) is not.

(i) John intends for Mary to go.

(ii) *I persuaded John for Mary to go.

I have no explanation for this fact, and am forced to adopt the usual (legitimate?) solution to the effect that persuade does not share all the syntactic properties of the lexical items corresponding to the primes it contains.

Epilogue to Chapter Three

There are some rather serious problems with the decomposition of the verbs of ordering and request, in particular with the prime TRY and the Intermediate Predicates.

Thus, the reason why TRY was selected was that, like the verbs of ordering and request, it implies nothing about the truth of its complement, whether it is asserted or denied. Notice, however, that the verbs of ordering and request, unlike the verb try, are performatives. Moreover, it is not possible for Pro-forms or deleted sub-strings to be understood as identical with the complement of TRY, as we can see in the following paradigm:

(i) I tried to get him to intend to go, but I failed.

(ii) *I ordered him to go, but I failed.

A possible way to explain the above paradigm away would be to point out that a complete analysis of verbs of ordering and request would have to include some specification that the performance in question is an oral one. Such additional specifications can be shown to interfere with anaphoric processes in independent cases, as in the paradigm below.

(iii) John killed Mary, but I'm not sure when he brought it about.

(iv) ?John assassinated the Premier, but I'm not sure when he brought it about.

It will be noticed that the representation of assassinate has been claimed by various Generative Semanticists to consist of the

representation of kill plus the specification that the victim is a person of some importance, whose death came about for political reasons.

With respect to the possible Intermediate Predicates of verbs of ordering and request, it will be noticed that they do not seem to be semantically necessary, since X orders Y to go seems to be roughly equivalent to X tries to cause Y to go, and there is hardly an intuitive need for an Intermediate Predicate embedded between CAUSE and go. The sole justification for such a predicate is the need for a COSUB, as CAUSE does not satisfy this condition. Thus, the postulation of COSUB Intermediate Predicate in this case appears somewhat ad hoc and needed only to make the Subject-Subject Proposal work.

It is to be hoped that the problems I brought out here are due to the specific analysis proposed for verbs of ordering and request, and that they do not invalidate the Subject-Subject Proposal. Further research is necessary, but should it eventually turn out that there are no good motivations for maintaining the Subject-Subject Proposal in its present form, it will still be possible to withdraw to a weaker position, without reverting to the Marked-Verb Proposal. The main defect of the Marked-Verb Proposal is its claim that controller selection is an idiosyncratic matter which does not allow for general predictions. If this were correct, we would expect a different distribution of exceptions in other languages in which there are counterparts of the English verbs mentioned in the

discussion and a rule of NP-Deletion. However, in all languages that I know of, the controller for verbs like promise is its surface subject and for verbs like order it is the surface object, which suggests that there are general semantic factors involved in controller selection. Notice that the Subject-Subject Proposal makes in fact two claims, that set it apart from the Marked-Verb Proposal:

- (a) the controller is discoverable by general principles
- (b) the controller is always the subject of the

Intermediate Predicate.

These two claims are mutually independent, and we can retain the former while rejecting the latter. Thus, if it should turn out that neither the decomposition of promise nor that of order (and their likes) can be carried out along the lines suggested in this chapter, and that these verbs are, after all, underlain by two-place elementary predicates, we shall have the option of dividing the COSUB class into two subclasses. To the two semantic features that we used for the characterization of COSUBs, we shall add a feature like "oriented toward a future action that its first argument (i.e., deep subject) can carry out." Verbs like promise will bear the value "+" for this feature, while those like "order" will bear the value "-". As for verbs that allow decomposition into Intermediate Predicates, we can consider this feature inapplicable to them (or vacuously taking the value "+").

APPENDIX TO CHAPTER THREE

The Semantic Primes Used in this Chapter

In this Appendix, I define the semantic primes that occurred in the body of the thesis. It will be noted that the semantic content of primes is generally defined in relation to some lexical item, which, in a somewhat loose sense, "corresponds" to it. The following seven primes are defined below: CAUSE, INCHOATIVE, TRY, INTEND, BE ABLE TO, BE FREE TO, HAVE TO.

CAUSE

(1) It means roughly bring about, without the idiosyncratic connotations of the latter (e.g., that its complement is slow in coming about, or that some resistance has to be overcome in order that the state of affairs described by the complement come about).

(2) It takes two arguments, a subject and a sentential complement.

(3) It is non-stative.

(4) Its complement subject may or may not be coreferential with its own subject.

(5) It may embed itself, like in I brought it about that John murdered his best friend.

(6) It is an IF-predicate, in Karttunen's sense.

INCHOATIVE

(1) It means roughly come about (again without the possible idiosyncrasies of the latter).

(2) It takes one argument, a sentential subject.

(3) It has some stative properties, although its status is not entirely clear, as can be seen in the following paradigm:

(i) I think Mary is reddening

(ii) *Redden!

(iii) *What Mary did was redden.

In addition, some people find stative predicates odd with time adverbs. Thus, (iv) strikes some people as strange. But (v) is certainly all right:

(iv) ?The president was popular at four o'clock.

(v) The president became popular at four o'clock (when he told the nation he was ending the war).

(4) As far as I can judge, INCHOATIVE does not embed itself, as we do not get *It's coming about that the metal is hardening. Some people do get It came about that the metal hardened, but I do not think that come about is understood as inchoative in this case; rather, it seems to be synonymous with happened.

(5) It is an IMPLICATIVE predicate.

TRY

(1) It has roughly the meaning of try or attempt.

(2) It is non-stative.

(3) It takes two arguments, an animate subject and a sentential complement.

(4) It does not embed itself.

(5) It embeds non-statives, and also certain statives, but not all:

(i) I tried to break into the house.

(ii) I tried to hate Mary, but I couldn't.

(iii) ?I tried to be popular.

(iv) *I tried to be tall.

What is going on here? I think that in (ii)-(iv) there is an intervening sentence with a causative predicate (like Perlmutter's get) which is later deleted. In fact, the only possible interpretation of (iii) is I tried to bring it about that I become popular.

If this is correct, we can say that TRY can only embed a non-stative. The unacceptability of (iv) can be attributed to the semantic incongruity of the putative complement of try, i.e., I brought it about that I became tall.

(6) It is future-action-oriented, and requires coreferentiality between its subject and its complement subject in underlying structure.

(7) As Perlmutter points out, when (6) is apparently violated, there are grounds for assuming an intervening sentence with let or get. However, this intervening sentence can only be deleted if the process of deletion does not lead to violation of coreferentiality in surface structure. Thus, we get (v) but not (vi):

(v) I tried to be arrested.

(vi) *I tried for Pat to leave.

INTEND

- (1) It has roughly the meaning of intend in a definite sense.

The last four words are important, for (i) is a good sentence for some speakers. However, we rule out (ii) by fiat:

(i) I intend to leave, but I have not finally made up my mind yet.

(ii) *I INTEND to leave, but I have not finally made up my mind yet.

- (2) It is a stative.

- (3) It takes two arguments, an animate subject and a complement.

- (4) It does not embed itself.

- (5) It does not embed statives.

- (6) It disallows emotive adverbs in its complement, e.g.:

(iii) *I intend to go reluctantly.

(7) It is future-action-oriented, therefore the time of its complement is future with respect to the time of the clause containing INTEND. As a consequence, underlying-structure coreferentiality is required between the subject of INTEND and its complement subject.

(8) Apparent violations of (7) entail a deleted underlying sentence. Unlike TRY, INTEND allows the deletion of this sentence in all cases:

(iv) I intend to be arrested.

(v) I intend that Ben should leave.

BE ABLE TO

(1) It has roughly the meaning of non-epistemic can, and is completely unmarked for the kind of ability it describes (such as

internal ability, ability resulting from the removal of external obstacles, etc.).

(2) (7) are identical to the corresponding requirements for INTEND. In connection with (5), such sentences as She can be happy, (if she wants to), are presumably decomposable as SHE IS ABLE TO [SHE CAUSE [INCHOATIVE [SHE BE HAPPY]]].

(8) It disallows any apparent violation of (7), as can be seen in the following paradigm:

- (i) *He is able to be arrested.
 (ii) *He is able { that Mary should be arrested }
 { for Mary to be arrested } .

(9) It is an ONLY-IF-predicate.

BE FREE TO

(1) It has roughly the meaning of non-epistemic may, as in I may go, meaning I have permission to go, but not as in You may go, meaning you are hereby given permission to go. BE FREE TO is, in some intuitive sense, partially similar in meaning to BE ABLE TO; the difference is, I think, that having permission to do something does not make one able to do that thing (as one may lack the internal ability to do so, or there may be further external obstacles). On the other hand, BE ABLE TO implies that there are no obstacles of any kind. Thus, although I enabled him to win the fight only asserts that I have removed all obstacles that might have prevented him from winning the fight, it also implies that he has the internal ability to carry it out, for (i) is very odd:

(i) ?I enabled him to win the fight, but he couldn't do it.

(2) - (7) are identical to the corresponding requirements for INTEND.

(8) It allows apparent violations of (7) in underlying structure, provided that there be no violations in surface structure:

(ii) I have permission to be arrested.

(iii) *I have permission for Mary to leave.

HAVE TO

(1) It has roughly the meaning of non-epistemic must.

(2) - (7) are identical to the corresponding requirements for INTEND.

(8) It allows apparent violations of (7) in underlying structure, provided that there be no violations in surface structure:

(i) I have to be arrested.

(ii) *I have (to) for Mary $\left\{ \begin{array}{l} \text{to leave} \\ \text{to be arrested} \end{array} \right\}$.

(9) It is an IF-predicate by fiat, in contradistinction to its corresponding lexeme, have to.

CHAPTER FOUR

ADDITIONAL PROBLEMS CONCERNING EQUI

Lee's PEQUI-CEQUI Proposal

In proposing to break down EQUI into two parts--DOOM MARKING and DOOM DELETION (see end of chapter one)--Postal leaves open the question whether DOOM MARKING is one rule, or several distinct rules applying at different points in a derivation and "conspiring" at creating the environment ultimately required for DOOM DELETION.

A proposal to have EQUI apply at two points in a derivation is found in Lee (1969). Lee notes the existence of by-clauses in which two coreferential NPs have been deleted, like:

- (1) The Premier was assassinated by being shot.

and whose source is presumably:

- (2) X assassinated the Premier by [X shot the premier].

I assume that by-clauses of this kind, which make precise the method used in carrying out the activity described in the main clause, are subject to what we may call a "holistic coreferentiality constraint", under certain conditions. By holistic coreferentiality constraint I mean that all the NPs represented in the main clause must have coreferents in the underlying structure of the by-clause. The

conditions under which this constraint holds are (a) the verb of the main clause is non-stative and (b) it is understood that the subject acted directly upon the object. Condition (a) is probably redundant, for stative verbs do not take by-clauses of this kind. Condition (b) is, however, important, for if it is not satisfied, the constraint does not hold, as in (3), which is grammatical:

(3) John frightened Mary_i by shooting Bill.

Thus, we can have (4), but not (5), (6) or (7):

(4) John_i wounded Mary_j with a knife_k by hitting her_j
with it_k.

(5) *John_i wounded Mary_j with a knife_k by hitting Bill
with it_k.

(6) *John_i wounded Mary_j with a knife_k by hitting her_j
with a bludgeon.

(7) *John_i wounded Mary_j with a knife_k by Bill's hitting
her_j with it_k.

A variant of (4) is (8), in which coreferentiality relations are also obligatory, but the function of the coreferential NPs is different in the two clauses. However, if Lakoff's claim that instrumental adverbs are derived from clauses containing use, the difference between (4) and (8) is purely superficial.

(8) John_i wounded Mary_j with a knife_k by using it_k to
hit her_k (with).

Lee notes that the deletion of both NPs is obligatory in (1), as we get neither (9) nor (10):

(9) *The Premier was assassinated by his being shot.

(10) *The Premier was assassinated by being shot by { him
someone }

As both NPs to be deleted are in the same clause, and as both controllers are also in the same clause, we cannot have the two NPs deleted by having EQUI apply on two separate cycles. On the other hand, it is not possible to increase the power of EQUI and allow it to delete all coreferential NPs in a subordinate clause, for this would yield ungrammatical sentences like (11) or (12):

(11) *Someone assassinated the Premier by shooting with a gun.

(12) *John wounded Mary with a knife by { hitting with
using to hit with }

Both NPs can be deleted only when they are in subject position. The first application of EQUI has to be pre-cyclical, for EQUI, by its very nature, cannot apply on the first cycle. However, X must be deleted in (2) before passivization has applied in the first cycle and removed it from subject position. As we cannot have a first cycle rule that looks at a higher sentence, the conclusion that the rule that deletes X is precyclic seems inescapable. Let "PEQUI" = "precyclic EQUI" and "CEQUI" = "cyclic EQUI." Lee notes that if EQUI precedes PASSIVE, the latter must be modified to allow it to apply to subjectless sentences. This is not necessary in our framework, where EQUI is replaced by DOOM MARKING at this point. As the doomed subject is not actually removed from the string, the SD of PASSIVE need not be modified.

With respect to CEQUI, Lee claims that it must follow PASSIVE, in view of (13):

(13) Mary wants to be beaten by Otto.

As can be seen from (13), Lee's ordering is not intended within the cycle. However, I believe that such a claim needs to be made, in view of the following: in order to derive (1) from (2), we saw that PEQUI and passivization on the first cycle are required. Suppose now that CEQUI precedes PASSIVE; if CEQUI applies on the second cycle and PASSIVE (an optional rule) does not, we get the ungrammatical (14):

(14) *Someone assassinated the Premier by being shot.

If an interpretation can be imposed on (14), it can at best be that the assassin was shot. This suggests that the controller in CEQUI must be in subject position, and the Premier can get to that position only through PASSIVE. Therefore, CEQUI, (or DOOM MARKING), must follow PASSIVE.

It is interesting to note that both kinds of EQUI that apply to by-clauses of the sort considered by Lee work from subject to subject. In chapter three, I argued that deep structure coreferentiality constraints for purpose-oriented verbs must also be subject-subject, and it would be interesting to see whether the two kinds of EQUI proposed by Lee can apply to sentences with COSUB verbs, and if so, whether they both work from subject to subject. The reason for looking into this matter is that by-clauses and clauses containing COSUB verbs have something in common: they both exhibit deep structure coreferentiality constraints. We saw in chapter one that verbs that do not require coreferentiality of some kind allow more than one controller, therefore we cannot impose such a condition on EQUI with

respect to them. It seems, however, that we must impose the subject-subject condition on CEQUI in by-clauses, which makes one wonder whether the subject-subject condition must be stated both in deep structure and in the structural description of CEQUI. Before attempting to answer the question, let us consider the behavior of other sentences in which coreferentiality constraints appear to be needed.

Consider the following sentences:

- (15) John_i asked the guard to admit him_i to the building.
- (16) *John asked the guard_j to be admitted by him_j to the building.¹
- (17) John asked the guard to be admitted to the building.
- (18) *The guard was asked by John to be admitted to the building.
- (19) The guard was asked by John_i to admit him_i to the building.

In (15), the object of ask and the subject of admit must be coreferential, and, if ask is decomposed as TRY TO CAUSE TO COME TO INTEND--as I suggested in chapter three--the constraint concerns the subject of INTEND and the subject of admit. In order to get (15), there are no compelling reasons for claiming that EQUI is precyclic or cyclic. But in order to get (17), EQUI must apply both precyclically and cyclically. In particular, the deep subject of admit must be deleted (in fact, doomed) precyclically, for cyclical EQUI can apply only on the second cycle, after PASSIVE has applied on the first cycle, removing the guard from subject position. We cannot dispense with PEQUI, for we must avoid the ungrammatical (16). With respect

to CEQUI, we see that it must follow PASSIVE. Indeed, if it precedes PASSIVE, it will apply on the second cycle to yield (17). But then it will be hard to explain why the application of PASSIVE to (17) results in the ungrammatical (18), and we would have to invent ad-hoc restrictions on the application of PASSIVE. However, if EQUI follows PASSIVE, we get (17) in case PASSIVE does not apply. If PASSIVE does apply, EQUI becomes inapplicable, for the subject-subject condition is not satisfied, and (18) is blocked. We see that in this case, as in the case of the by-clauses, we must impose the subject-subject condition on CEQUI.

Consider now the set:

- (20) John promised Bill to take him to the hospital.
- (21) Bill was promised by John to be taken to the hospital (*by him)¹
- (22) *Bill was promised by John to take him to the hospital.
- (23) John promised Bill to be taken to the hospital.²

This set raises much more difficult problems than the previous examples. We cannot explain the ungrammaticality of (22) by imposing the subject-subject condition on CEQUI, for (22) is derived from (20) without any application of EQUI. Indeed, the subject of take is doomed by PEQUI. If nothing happens on any cycle, (20) results. But if PASSIVE applies only on the second cycle, the result is ungrammatical. However, if PASSIVE applies on both cycles, the result is the grammatical (21).

What is going on here? It seems that the subject-subject condition on CEQUI is of no avail here, unless we want to make it obligatory even for items already doomed by PEQUI. In any event, there is something intuitively unsatisfactory about a condition that has to be imposed on deep structures as well as on a transformation, and one cannot escape the feeling that a generalization is being missed. This impression is reinforced by the observation that no subject-subject condition is needed for PEQUI, which applies on a structure still undeformed by transformations and in which subject-subject coreferentiality is ensured by the deep structure constraints. Therefore, the subject-subject condition had to be mentioned only for CEQUI, and only in those cases in which deep structure coreferentiality was a requirement. The mess can be straightened out by removing the subject-subject condition from cyclic EQUI, and by imposing the following derivational constraint:

- (24) If the subjects of two sentences must be coreferential in underlying structure, their subjects at the end of the cycle must also be coreferential.³

Condition: Neither the subject nor the predicate of either sentence has been raised or deleted by the end of the cycle.

The above condition constrains the domain of applicability of (24), which does not hold in sentences like (25) and (26) a.

(25) I intend for John to leave.

(26) a. I persuaded John to leave.

b. John was persuaded by me to leave.

Indeed, underlying structure coreferentiality is satisfied in (25) through a get or let sentence whose subject and predicate have been deleted by the end of the cycle. In (26) a, underlying coreferentiality is satisfied through the Intermediate Predicate INTEND, which has been moved upwards by PREDICATE RAISING before the end of the cycle, and is grouped with the two initially higher predicates INCHOATIVE and CAUSE. As the restrictions on a predicate are not transmitted to the group into which it has been raised, (24) does not hold for the lexical item persuade, inserted in place of that group, and passivization can occur freely, as in (26) b.

(24) does, however, hold for promise, regardless of whether we decompose it or not. If we do not, it holds for obvious reasons. If we do, it holds through the topmost causative sentence, whose subject and predicate are neither deleted nor raised. It is apparent that (24) can handle all the cases discussed in this chapter. The reason why it mentions the output of the cycle rather than surface structure is that the doomed NPs are still available at that point, since the rule that deletes them--DOOM DELETION--is postcyclical. Let us consider one more case which (24) can handle and which the subject-subject condition on cyclic EQUI cannot. It is well-known that purpose clauses require that their subject be coreferential with the subject of the matrix sentence. Consider now the following:

- (27) a. We bought the oysters in order to fry them.
 b. The oysters were bought by us in order to
 be fried.

- (27) c. *The oysters were bought by us in order to fry them.

The above paradigm is identical to the one formed by (20)-(22). The subject of fry is doomed precyclically, and the ungrammaticality of (27) c results from the mere application of PASSIVE to (27) a. Therefore, the ungrammaticality of (27) c cannot be blamed on CEQUI, and must be handled by (24).

I believe that (24) is a much more satisfactory solution than having both deep structure constraints and the same constraints repeated for a transformation. Notice, however, that (24) is not the only way out that suggests itself. One might think (especially if one finds (21) and (27) b ungrammatical) that deep structure constraints can be eliminated altogether and the subject-subject condition imposed on both PEQUI and CEQUI. This is in fact the solution chosen by Lee. But I tend to reject it for three reasons:

(a) there seems to be an intuitive feeling that the coreferentiality constraint found in by-clauses, future-action oriented clauses and purpose adverbial clauses is required on semantic grounds (see p. 27). If so, it belongs in underlying structure.

(b) deep structure constraints are required in the grammar independently of transformations. Consider, for example, the following:

- (28) I killed John_i by stabbing him_i.

- (29) *I killed John_i by stabbing Bill_j.

The "holistic" coreferentiality requirement of by-clauses cannot possibly be blamed on a transformation.⁴

(c) the only argument given by Lee against Perlmutter's deep structure constraints is invalid. Perlmutter had claimed that persuade required its object to be coreferential to its complement subject, and had illustrated his point with the following examples:

(30) *I persuaded Clarabelle for Clem to plow the field.

(31) I persuaded Clarabelle to plow the field.

Lee claims that the coreferentiality requirement arises only after the introduction of the for-to complementizer, for, if the complementizer is that, no coreferentiality is required:

(32) I persuaded Clarabelle that Clem should plow the field.

However, nothing for the purposes of the present argument follows from (32), for the persuade of (32) and the persuade of (31) are different verbs, although probably related (see also my discussion of this point on pp. 76-77).

Notice that (24) does not remove the need to order CEQUI after PASSIVE, in view of (18).

Grinder's SUPER-EQUI-NP-DELETION Rule

Grinder (1970) claims that there is a rule that deletes NPs under coreferentiality conditions across intervening sentence nodes, as in John knew that criticizing himself would be difficult, and argues that this rule--SUPER-EQUI-NP-DELETION--should be adjacent to EQUI in the cyclical ordering. The natural next step is to collapse EQUI and SUPER-EQUI, and Grinder proposes just this. The problem that confronts us now is whether Grinder's proposal is

compatible with the discussion in the previous section, since Grinder proposes the ordering SUPER-EQUI, RAISING, PASSIVE, and we concluded that CEQUI follows PASSIVE. I believe that the conflict between Grinder's proposal and mine is only apparent, since the ordering he proposes is not the only possible one.

In arguing for an ordering of SUPER-EQUI before RAISING and PASSIVE, Grinder points out that deletion is normally blocked by an intervening NP, unless the latter is a clause mate of the controller (this is, in fact, predicted by Langacker's principle of control). However, an intervening NP that became a clause mate of the controller through RAISING blocks the application of SUPER EQUI. Therefore, SUPER EQUI must precede RAISING. Grinder's examples are given below:

- (33) Tom told Harriet that it would be tough to
prevent { himself } from crying at the
 { herself } wedding.

- (34) *Elmer claimed that Jennifer knew that it was
 necessary to brush his own teeth.

- (35) *Elmer claimed Jennifer to have known that it was
 necessary to brush his own teeth.

- (36) *Jennifer was claimed by Elmer to have known that
 it was necessary to brush his own teeth.

In (33), Harriet does not block SUPER EQUI. However, in (35), Jennifer does block it, although it is a clause mate of Elmer. Therefore, SUPER EQUI must apply to a structure like (34), where Jennifer is not yet a clause mate of Elmer. It seems pretty well proven that SUPER EQUI must precede RAISING.

With regard to the ordering of SUPER EQUI and PASSIVE, Grinder points out the ungrammaticality of (36), in which Elmer is closer to the deleted subject than Jennifer is, and still cannot function as controller. Notice, however, that (36) can be ruled out if we extend (24) to cover such cases. That is, if we slightly modify (24) to make it read as follows:

- (24') If the subjects of two predicates are coreferential in underlying structure, their subjects must be coreferential in the output of the cycle.

Of course, (24') is irrelevant if RAISING must precede PASSIVE. But it has recently been shown that if RAISING has the power to raise a subject to either object or subject position, it becomes unnecessary to order RAISING before PASSIVE. In conclusion, we can collapse EQUI and SUPER EQUI and still explain (18), for the ordering PASSIVE, SUPER EQUI, RAISING is, in fact, perfectly possible.

Regardless of this issue, I believe that Grinder is right in claiming that there are not two separate rules-- EQUI and SUPER EQUI-- and that EQUI is a special case of SUPER EQUI. Both rules operate within the same limits--those of the principle of control--except that we have an instance of EQUI proper when the complement subject happens to be one clause below the controller. In general, we do not find cases of SUPER EQUI, where controller-uniqueness is determined by deep structure coreferentiality constraints, for SUPER EQUI occurs when the matrix verb is a declarative. The reason for this is that non-declaratives require a coreferential subject in the

immediately lower sentence. There are, however, cases of SUPER EQUI in which the controller has to be unique, and Grinder considers such cases to be counterexamples (see his footnote 9). As an instance, consider (37), in which the subject of admit is understood as John but not the guard:

- (37) John asked the guard whether it would be difficult
to be admitted to the building.

We recall McCawley's proposal presented in chapter three, according to which (37) would have a source like (38):

- (38) John_i asked the guard_j [the guard_j tell John_i whether
 $\left\{ \begin{array}{l} \text{for him}_i \\ * \text{for him}_j \end{array} \right\}$ to be admitted to the building would
 be difficult].

It seems that tell is indeed a declarative, so that the controller restriction appears puzzling. Recall, however, the discussion in chapter three, pp. 67-69, where I suggested that deep structure coreferentiality constraints may hold even for declaratives, if the complement is future with respect to the matrix declarative verb. And in fact, the constraint no longer holds if we change the tense of the complement of ask in (37) to yield (39):

- (39) John asked the guard whether it had been difficult
to be admitted to the building.

The subject of admit can be understood as either John or the guard. The reading with John as controller is semantically odd in ordinary circumstances, but quite all right if we assume that John has been struck by temporary amnesia and is asking the guard to tell him about an experience that he cannot remember anything about. We see

that (37) is not really a counterexample to the principle of control, as Grinder thought.

Let us now inquire whether SUPER EQUI, like EQUI, must apply both precyclically and cyclically. It seems unlikely that we should find instances of precyclic SUPER EQUI. Indeed, recall that PEQUI was necessary for by-clauses and for complements of a verb like ask, in which two NPs had to be deleted under conditions of coreferentiality. I do not see how other sentences could intervene between by-clauses and their matrices; as for ask, we only find the coreferentiality requirement with respect to the immediately lower clause, not all lower clauses. Thus, although (40) is bad, (41) is not:

(40) *John asked the guard to be admitted to the building
by Bill.¹

(41) John asked the guard whether it would be difficult
to be admitted to the building by Bill.

It seems that SUPER EQUI should be collapsed only with CEQUI.⁵ The cyclicity of SUPER EQUI is apparent in sentences like (41), where deletion must follow the application of PASSIVE on the first cycle. Additional evidence of the cyclic character of SUPER EQUI is furnished by the following very nice example given by Grinder:

(42) That it was likely that washing $\left\{ \begin{array}{l} \text{himself} \\ * \text{herself} \end{array} \right\}$ would
disturb Pete surprised Eileen.

(43) That washing $\left\{ \begin{array}{l} \text{himself} \\ \text{herself} \end{array} \right\}$ was likely to disturb
Pete surprised Eileen.

(42) and (43) have the same deep structure, except that EXTRAPOSITION has applied to the former and RAISING to the latter. In fact,

EXTRAPOSITION is irrelevant to (42), as it is probably a post-cyclic rule (as claimed by Ross in his dissertation). The ungrammaticality of (42) when Eileen is the subject of wash follows from the ungrammaticality of (44) under the same circumstances:

(44) That that washing $\left\{ \begin{array}{l} \text{himself} \\ * \text{herself} \end{array} \right\}$ would disturb

Pete was likely surprised Eileen.

I assume that (42) was chosen rather than (44) as repeated self-embedding makes the acceptability of the latter hard to judge. The important distinction between (42) and (44) on the one hand and (43) on the other is that, in the former two cases, Eileen cannot be the controller, since Pete controls the subject of wash; in the latter case, however, Pete can act as controller before RAISING applies, while Eileen can be the controller after RAISING has applied. Indeed, notice that after the application of RAISING on the third cycle, Pete no longer commands the subject of wash, and therefore fails to control it.

Before concluding, I wish to stress an additional important point made by Grinder. He points out that the principle of control is a little too strong, as it would rule out the grammatical (45), together with the ungrammatical (46)-(48).

(45) John said that making a fool of himself disturbed Sue.

(46) *John said that it disturbed Sue to make a fool of himself.⁶

(47) *That it disturbed Pete to wash herself surprised Eileen.

- (48) *That washing herself disturbed Pete surprised Eileen.

Therefore, SUPER EQUI--which includes the former EQUI--should be formulated as follows:

- (49) An NP_c can delete a coreferential NP_k that is the subject of a clause embedded at a point arbitrarily lower than NP_c , unless there is an NP_i such that NP_i controls NP_k , and (a) either NP_i precedes NP_k or (b) NP_i linearly intervenes between NP_c and NP_k .

Footnotes

¹Sentences (16), (21), and (40) are fine if by him and by Bill are contrastively stressed. D. T. Langendoen pointed out to me that the rule of DOOM-DELETION may be constrained to apply only to items that do not bear contrastive stress.

²Notice that in (21) and (23) the underlying subject of take can also be understood as some unspecified agent. I believe that these readings of the above sentences do not constitute real promises, but predictions or assurances, like in I promise you that you will be happy again. It seems that we need to posit two homophonous items promise. On the reading on which (21) and (23) do constitute promises, there is an intervening get-sentence, which gets deleted cyclically with the result that (24) need no longer hold.

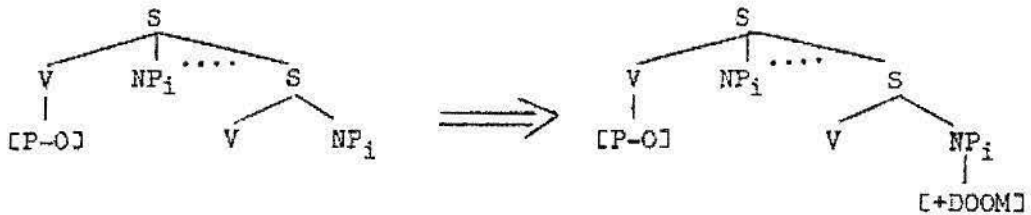
³An objection similar to that I raised against Rosenbaum's minimal distance principle can be raised against (24), namely that there must be a deeper reason why such a constraint should exist. I believe that it serves a purpose similar to the constraints involving the ordering of quantifiers discussed by Lakoff in "On Generative Semantics", namely to make the reconstruction of underlying structures possible, given surface structures and perceptual strategies.

⁴As I pointed out in chapter one, section (E), coreferentiality constraints sometimes hold for verbs that allow a that-complementizer, when no deletion transformation applies. The paradigm I mentioned there is reproduced below:

I confess that I killed John.

*I confess that Mary killed John.

⁵As SUPER EQUI is only collapsed with CEQUI, it becomes a relatively simple matter to formulate PEQUI:



where the feature *P-O* on the verb stands for "purpose-oriented."

⁶Grinder points to a difficulty here. (46) is derived from (45) through EXTRAPOSITION, and if (46) is to be ruled out through the blocking of SUPER EQUI, EXTRAPOSITION should be cyclic. As there is evidence against the cyclicity of EXTRAPOSITION, it seems we must have recourse to an ad hoc derivational constraint. D. T. Langendoen suggested to me that such a derivational constraint would not be quite so ad hoc, since DOOM MARKING and DOOM DELETION are in fact equivalent to a derivational constraint themselves. Therefore, we might perhaps say that extraposition of a clause around an NP wipes out any DOOM marking in that clause. Also, there are counterexamples to the claim made by (46), e.g.

(i) John said that it proved something to be able to
look at himself in the mirror that morning.
I shall not attempt to decide the issue, as the situation seems far
from clear.

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